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AN INTERNATIONAL ASSOCIATION FOR MEDICAL EDUCATION

THE LEADING INTERNATIONAL MEDICAL EDUCATION CONFERENCE

"Colouring outside the lines"

PRAGUE
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Prague Congress Centre
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CONFERENCE ABSTRACTS 2013

40th ANNIVERSARY of amee

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SESSION 1: Plenary
Sunday 25 August: 1700-1915

1A Plenary: Restoring Learning to Life – why healthcare professionals should fall in love with learning, and how they can do so…
Location: Congress Hall, PCC

**Alistair Smith** _(Alistair Smith Learning, UK)_

Summary: In this wide-ranging and highly personal presentation which draws from different disciplines, Alistair Smith will examine what we currently know about teaching and about learning. He will examine the 'anatomy' of the learner and argue that with more insightful teaching which focuses on the learner we can radically transform the capacity of our profession to improve. Alistair Smith has been described as the UK's leading trainer in modern learning methods. He has delivered well over 1,100 training and development events and is still counting. He is an author of best-selling books including books on learning, neuroscience in education and more recently on the culture of high performing schools. He specialises in taking the theory of learning, translating it into everyday practice and making it accessible for all.

Biography: Alistair is Education Director for Frog Trade Ltd, one of the world's most successful providers of virtual learning environments. His part-time role will be to help shape product design and implementation. In addition to his work in education, where he is known for his innovative approaches to development, Alistair also works in professional sport. He has been the designated learning consultant to the English Football Association for the last years. Currently he is helping design and deliver the worlds' first elite football coaches course. In his spare time he loves to do more of the above especially if he can run around as he does so. He also likes real ale and real pubs, loud bands and snow on the hill tops. He is an exiled Scot.

SESSION 2: Simultaneous Sessions
Monday 26 August: 0830-1015

2A Symposium: The medical school of the future
Location: Congress Hall, PCC

Hilliard Jason (University of Colorado, Denver, USA)
Janet Grant (Open University, UK)
Richard Hays (Bond University, Australia)
Ronald Harden (AMEE, UK)
Madalena Patricio (Portugal) (Chair)

Summary: In the spirit of the theme of the Conference - Colouring Outside the Lines - four speakers will present their views on the medical school of the future. Their different visions will be discussed by participants, with a view to determining whether the descriptions offered are a disguised form of science fiction, or a realistic perception of where medical schools might be in the years ahead.

2B Symposium: Script Concordance testing across the continuum of health professions education
Location: Meeting Hall I, PCC

Steven J. Durning (Uniformed Services University of the Health Sciences, Bethesda, USA)
Bernard Charlin (University of Montreal, Canada)
Stuart Lubarsky (McGill University, Canada)
Paul Duggan (University of Adelaide, Australia)
Eduardo Pleguezuelos (PRACTICUM Institute, Madrid, Spain)

Summary: Script concordance tests (SCTs) are being increasingly adopted for use in medical curricula around the world. The goal of this symposium is to summarize the ever-broadening applications of SCT across the spectrum of health professions education, from undergraduate through postgraduate and continuing professional development. Current controversies surrounding the SCT will be highlighted during the presentations. Steve Durning will open the session with introductory remarks and a brief overview of the SCT. Bernard Charlin will present the theoretical underpinnings of the script concordance approach. Stuart Lubarsky will summarize the current literature on the use of SCT in residency education, with a focus on areas of dispute. Paul Duggan will discuss the potential role of SCT for use in high-stakes clinical reasoning certification exams in medical school. Eduardo Pleguezuelos will provide insights into his institution's experience using an innovative web-based SCT platform as a tool for continuing health professional education.

2C Short Communications: Staff/Faculty Development 1
Location: Panorama, PCC

2C/1
Pay it Forward: A new spin on professional development in medical education

Frank Bate *(University of Notre Dame Australia, School of Medicine, Fremantle, Australia)*
Carole Steketee (University of Notre Dame Australia, School of Medicine, Fremantle, Australia)

Background: MedEdWorld provides services to develop medical educators' knowledge. One of these services is its webinar program. For some years, academics at the University of Notre Dame medical education unit have attempted to engage medical educators in the webinar program, with limited success. The Pay it Forward initiative provides an alternative approach to real time webinars.
Summary of work: Pay it Forward examines upcoming webinars, connecting targeted leaders with key themes. A dialogue begins which is aimed at interpreting webinars for the local context, where appropriate suggesting policy responses. A captured webinar is then given to leaders with resources and support to assist in developing deep understandings of the issues involved. Finally, leaders are encouraged to think creatively about how to share their interpretations with the wider university community.
Summary of results: This paper discusses initial outcomes from Pay it Forward, from perspectives of knowledge/skills development and educational change. Pay it Forward has been shown to present a fresh approach to educational professional development. First, it provides educational leaders with the support needed to engage with contemporary issues at a deep intellectual level; secondly, by encouraging leaders to contribute to policy development, medical educators can develop their capacity as educational change agents; finally, developing educational professional development for time-poor health professionals promotes succinct and creative approaches.
Conclusions: Pay it Forward could be an important educational intervention that changes the way in which professional development is conducted in time-scarce environments.
Take-home messages: Pay it Forward leverages knowledge generated through a global community for a local context, supporting both leaders and novices on their own learning trajectories, whilst at the same time sustaining a culture of continuous improvement.

2C/2
How do Faculty Developers Prepare themselves to Conduct Instructional Improvement Workshops?

David Irby *(University of California San Francisco, Medicine, San Francisco, United States)*
Patricia O'Sullivan (University of California San Francisco, Medicine, San Francisco, United States)

Background: One key to faculty development is modeling best practices during an offering. What kind of preparation do faculty developers engage in to provide such a workshop?
Summary of work: We interviewed 29 of 30 eligible full-time faculty members who from 2007-12 volunteered to teach periodically in school of medicine faculty development workshops. We asked them to describe how they prepared for their workshops. We received IRB approval and conducted in-person or telephone interviews. We collaboratively conducted a thematic analysis of transcripts followed by a secondary analysis based on recognition of alignment with curriculum development.
Summary of results: Initially, we identified 25 codes which upon secondary analysis aligned with a well-known curriculum development model. As a group developers employed all steps: 1. Problem identification - "I will usually do a review of the literature." 2. Needs assessment – "I solicit information beforehand from participants." 3. Goals and objectives – "We develop a set of learning objectives…and then design the session to meet those objectives." 4. Educational strategies –"I think a lot about how to engage learners and make it interesting and engaging." 5. Implementation – "I elicit goals from the audience and kind of improvise." 6. Evaluation and feedback – "We get evaluation scores and I always read those to think about how I might be better."
Conclusions: While faculty members prepare for their workshops using a six step process of curriculum development as guidance, they most consistently focus on needs assessment, instructional strategies for engagement, and evaluation and feedback.
Take-home messages: Best practices in preparing for faculty development align with good curriculum development.

2C/3
Role Modeling Workshop: Is It Effective in Improving Lecturers' Attitude and Practice?

Endang Basuki *(University of Indonesia, Department of Medical Education, Faculty of Medicine, Jakarta, Indonesia)*
Pamela Priyudha (University of Indonesia, Department of Community Medicine, Faculty of Medicine, Jakarta, Indonesia)

Background: Role modeling is at the heart of professional character formation. Various research indicated that the example showed by a lecturer will influence students' attitudes and behavior. Role modeling is an important teaching strategy to change values, attitude, mind-set, and behavior of students and also can influence students' career choice.

Summary of work: A three day role modeling workshop involving 24 lecturers was done. Before, right after and three months after the workshop participants filled out a questionnaire on the importance of role modelling in medical education and the effort that has been made in becoming a role model.

Summary of results: There were changes in participants' attitude and behavior 3 months after the workshop. Effort to become role model for colleagues was significantly increased (p 0.04). Willingness and effort to become role model for students were also increased with p 0.049 and 0.005. Barriers faced in the effort to become role model were the weakness of human resources development and lack of support from the organization. Other barriers were low self-confidence and commitment.

Conclusions: Role modeling workshop can increase lecturers' attitude and behaviour, but to achieve sustainability other interventions are needed. Establishing work culture and better staff-student ratio conducive to performing role model are needed along with the role modeling workshop.

Take-home messages: Conducting role modeling workshop was effective to change the attitude and behaviour of FMUI staff so that they can perform better as lecturers who are expected to influence students' attitudes and behavior.

2C/4

The Pedagogical Formation of Medical Education Professors: an experience of interdisciplinary formation in the institution's context

Cleidilene Ramos Magalhães (UFCSPA, Educação e Informação em Saúde, Rua General Sousa Doca, 242/201 - Porto Alegre/RS Brasil, Rua Sarmento Leite, 245/412 - Porto Alegre/RS Brasil, Porto Alegre 90-630-050, Brazil)
Márcia Rosa da Costa (UFCSPA, Educação e Informação em Saúde, Porto Alegre, Brazil)

Background: This work presents reflections on the teaching development process of medical professors as it aims at discussing the importance and need of pedagogical training for university professors.

Summary of work: It is a reflective report of a pedagogical training offered to medical education professors as well as to other professors related to the health area between 2004 and 2012 at a Brazilian Federal University. This training was based on the assumption of an interdisciplinary and contextualized pedagogical training. This report presents data from courses of continuing teacher education, focusing on the context of the institution where it was taken.

Summary of results: Between 2004 and 2012, 181 professors (70%) participated in this pedagogical training. We believe this continuing education has encouraged teachers to reflect on their pedagogical training and practice; on their conceptions; on teaching and learning styles and on the need of a constant dialogue with adopted teaching practices.

Conclusions: We call attention to the challenging aspect of dealing with the specificities and needs of teachers as well as teachers' and students' willingness to continuing learning.

Take-home messages: The process of pedagogical training is a long journey permeated with conflicts, the different types of knowledge and the gaps of it in the academic community; resignifying its concepts and practices of evaluation and its own reformulation.

2C/5

"Knowing what you don't know": A clinical training program to standardize practice

Lisa Di Prospero (Odette Cancer Centre at Sunnybrook, Radiation Therapy, 2075 Bayview Avenue,, Toronto M4N3M5, Canada)
Brian Liszewski (Odette Cancer Centre at Sunnybrook, Radiation Therapy, Toronto, Canada)
Glen Gonzales (Odette Cancer Centre at Sunnybrook, Radiation Therapy, Toronto, Canada)
Kari Osmar (Odette Cancer Centre at Sunnybrook, Radiation Therapy, Toronto, Canada)
Laura D'Alimonte (Odette Cancer Centre at Sunnybrook, Radiation Therapy, Toronto, Canada)
Rachel Bagley (Odette Cancer Centre at Sunnybrook, Radiation Therapy, Toronto, Canada)

Background: Radiotherapy professional practice is inherently dynamic. Anecdotal feedback and informal peer observations identified variances in practice. This variation was due to a "train the trainer" model that fostered a siloed approach to how knowledge was attained, disseminated and assessed. Our aim was to standardize training and dissemination using case based training facilitated by a peer in-house expert to integrate theory and practice.

Summary of work: Radiation Therapists (N=120) participated. A pre- and post- survey was distributed to capture measures on knowledge, skill and judgement. The survey included an authentic case study as well as self-rating of confidence. Inaugural sessions included debrief of facilitators to capture participant discussions that ensued during each training session.

Summary of results: The majority of participants identified their own training was from a peer as an informal process. Self-rated confidence levels increased in both knowledge and skill. There was a shift in perceived confidence of clinical reasoning from identifying the need to confer with peers to making decisions on their own. Impromptu discussions harnessed an "unplanned" teaching opportunity by facilitators to support exercises in clinical reasoning including deficiencies in knowledge and variabilities in practice.

Conclusions: Initial assessment of the formalized education program was positive evidenced by increases in self-ratings by all participants in confidence and proficiency. Facilitated discussions enhanced the professional learning.

Take-home messages: To ensure consistency in practice and continued competence – a formalized training

program must be integrated within organizational strategic approaches inclusive of measures beyond the superficial survey satisfaction indicators.

2C/6
Developing an open eLearning community in a social network

Anne Marie Cunningham (School of Medicine, Cardiff University, Institute of Primary Care and Public Health, Neuadd Meirionydd, Heath Park, Cardiff CF14 4XN, United Kingdom)

Background: Online social networks allow educators to develop connections with others who are interested in the same topics as themselves. Closed communities which are not integrated with existing social networks can be difficult to develop and sustain. I wanted to develop a community for students, faculty and administrator interested in the use of technology in medical education.

Summary of work: I chose to host the community as a LinkedIn group as it is an existing social network which is related to online professional presence. Membership of the group or LinkedIn is not necessary to be able to access the discussions. However only group members can start new discussion threads.

Summary of results: The group has more than 500 members and this is growing steadily. Using LinkedIn analytics we can see that members are mainly from within the UK and in higher education. Medical students, and educators from other fields in health science education are active participants. On average 3 new discussions are started, and 20 comments posted to the group each week.

Conclusions: The public nature of the group means that discussions can easily be shared with other social networks such as Twitter to increase participation and dissemination. Some of the most popular discussions, for example around the use of tablets in medical education, have been used as resources by other groups as they present fresh perspectives. The barriers to participation are lowered by seeing the nature of discussions before signing up to join the community. However, some members may be inhibited by posting publicly.

Take-home messages: Open communities can be developed within social networks sites, with good uptake and use by medical educators.

2C/7
Faculty Development – Experience in a Traditional Medical School, Rio de Janeiro, Brasil

Anna Tereza Soares de Moura (State University of Rio de Janeiro, Faculty of Medical Sciences , Av. Prof. Manoel de Abreu, 444 - Vila Isabel, Rio de Janeiro - RJ, 20550-170, Rua Oliveira Rocha 22/101, Jardim Botânico, Rio De Janeiro 22461-070, Brazil)
Henry Holanda Campos (Federal University of Ceara, Medicine School, Fortaleza, Brazil)
Albanita Viana de Oliveira (State University of Rio de Janeiro, Faculty of Medical Sciences, Rio de Janeiro, Brazil)
Marcos Junqueira do Lago (State University of Rio de Janeiro, Faculty of Medical Sciences, Rio de Janeiro, Brazil)
Renata Nunes Aranha (State University of Rio de Janeiro, Faculty of Medical Sciences, Rio de Janeiro, Brazil)

Background: Medical education in Brazil has evolved greatly in recent decades, driven by public policies and awareness for alignment with community's and health system necessities. Transformations in traditional profile schools are not an easy task especially because faculties' resistance and overvaluation of post graduate and research. Faculty of Medical Sciences in State University of Rio de Janeiro has a traditional educational model and its pedagogical project is not yet aligned with National Curriculum Guidelines.

Summary of work: Three thematic workshops were conducted with about 100 participants from all departments, other academic units and central management. Six working groups were created to review political pedagogical project from the perspective of basic-clinical and health system integration, student attention, new teaching and assessment methods. Moodle Platform was used as a facilitating tool. Students' participation was also enhanced in all initiatives.

Summary of results: Staff already sensitized, innovative experiences and management support are positive factors that facilitate the entire process. Response to initiatives has been encouraging, with perception of a growing movement of institutional integration and strength for undergraduate practices.

Conclusions: The path is challenging, requiring institutional partnerships and legitimacy peer. Teachers would like to identify a clear path from managers to be followed and want to be reward for their academic activities.

Take-home messages: Faculty development is an important tool to promote learning environment, integrative curriculum and better networking in order to overcome challenges of engaging teachers in their practices with undergraduates.

2D Short Communications: Basic Science 1 – Clinical Integration
Location: Meeting Hall IV, PCC

2D/1
Linking basic science knowledge retention and perceived clinical relevance in a vertically-integrated curriculum

Bunmi S. Malau-Aduli (University of Tasmania, Medical Education Unit, School of Medicine, 17 Liverpool Street, Private Bag 73, Hobart TAS 7000, Australia)
Adrian Y.S Lee (University of Tasmania, School of Medicine, Hobart, Australia)
Marianne Catchpole (University of Tasmania, School of Medicine, Hobart, Australia)
Nick Cooling (University of Tasmania, School of Medicine, Hobart, Australia)
Matthew Jose (University of Tasmania, School of Medicine, Hobart, Australia)
Richard Turner (University of Tasmania, School of Medicine, Hobart, Australia)

Background: For medical students to apply clinical reasoning based on sound scientific principles, they must be able to retain basic science knowledge as they progress. However, when knowledge gained is not perceived as applicable to clinical contexts, it is less likely to be retained.
Summary of work: We investigated the relationship between perceived clinical relevance and retention of basic science knowledge in Years 2-5 students through a 50-item multiple-choice question (MCQ) examination. Information was collected pertaining to demographics, prior educational experience, and the perceived clinical relevance of each question.
Summary of results: A total of 232 students (response rate 50%) undertook the assessment task. Retention of basic science knowledge was significantly affected ($p<0.001$) by year of study, gender and student origin. There were increasingly positive correlations between items answered correctly and their perceived relevance from Years 2 to 5 (Year 2, $r=0.040$; Year 3, $r=0.26$; Year 4, $r=0.36$; Year 5, $r=0.60$).
Conclusions: This study highlights the increasingly positive correlation between perceived clinical relevance and the retention of basic science knowledge with progression to more senior years. Strategies to promote the clinical relevance of teaching material to students may be critical to the retention of that knowledge and its ultimate transfer to the clinical context. Perceived relevance of a subject matter elicits deep learning and fosters retention of knowledge.
Take-home messages: Basic science knowledge is more likely to be retained if students have a greater perception of its clinical relevance.

2D/2
On the relevance of biomedical knowledge for the acquisition of clinical knowledge

Stefan K. Schauber (Charité - Universitätsmedizin Berlin, Institute of Medical Sociology and Dieter Scheffner Center, Luisenstraße 57, Berlin 10117, Germany)
Martin Hecht (Humbold Universität zu Berlin, Institute for Educational Quality Improvement, Berlin, Germany)
Zineb M. Nouns (Charité - Universitätsmedizin Berlin, Dieter Scheffner Center for Medical Teaching and Educational Research, Berlin, Germany)
Susanne Dettmer (Charité - Universitätsmedizin Berlin, Institute of Medical Sociology, Berlin, Germany)

Background: Basic science education in undergraduate medical education faces several challenges. One prominent discussion is focused on the relevance of biomedical knowledge for the development and integration of clinical knowledge. Although the value of basic science knowledge is generally emphasized, several theoretical positions differ on the relative role of this knowledge and the optimal approach for its instruction. We address the question whether and to which extent biomedical knowledge is related to the development of clinical knowledge.
Summary of work: We analyse repeated measure data of performances on basic science and clinical knowledge assessments. A sample of N=598 medical students from a traditional curriculum participated in the study. Overall a developmental phase of 2 years of medical education was covered. Structural equation modelling was used to analyse the temporal relation between biomedical knowledge and the acquisition of clinical knowledge.
Summary of results: Our data indicates a decline in basic science knowledge which is complemented by a growth of clinical knowledge. Statistical comparison of several structural equation models revealed that a model specifying unidirectional relations from earlier states of biomedical knowledge to subsequent changes in clinical knowledge explained the data best. However, the parameter estimates indicate that this association is negative.
Conclusions: Our analysis suggests a negative relation between earlier levels of basic science knowledge and subsequent gains in clinical knowledge. We discuss limitations of our study such as the given educational context and the non-experimental nature.
Take-home messages: Results presented here hint at possibly critical issues in basic science education that have been rarely addressed thus far.

2D/3
Student perceptions toward case based approach of teaching physiology

Lubna Al-Asoom (University of Dammam, Physiology, Dammam, P.O. Box 2114, Dammam 31451, Saudi Arabia)

Background: Integrated learning is targeted recently by the medical schools in the developing countries. In the college of medicine, university of Dammam, the main theme of teaching is the traditional subject based curriculum. We aimed in the department of physiology to introduce a model of vertically integrated curriculum for second year medical students for respiratory physiology in Dec 2012. Case based approach was implemented. The student perceptions for this approach were tested.

Summary of work: Twelve lectures of respiratory physiology were given. Each lecture commenced with one clinical scenario related to the main physiological concepts of the lecture. Multiple choice questions were posted following the scenario to attract the attention of the students. Relevant facts were explained. Lastly, the case related questions were discussed interactively with the students. A questionnaire was given to the students to check their perception of the case-based method.

Summary of results: Fifty eight students participated in this evaluation. 90% think the case based approach is a better method, 84% think it makes understanding better, helps them for better understanding in the future, and it should be continued in the future. About 75% found clinical scenario based MCQs and SEQs is a better way of judging their knowledge, and agreed that it motivates their critical thinking.

Conclusions: Most of our second year students have good perception toward case based approach in teaching physiology in understanding, assessment and future application of the knowledge.

Take-home messages: Case based approach in teaching physiology seems to be a good implementation toward vertical integration in university of Dammam.

2D/4
Educational Strategies to Promote Clinical Reasoning: Arguments for Medical University to Plan Curriculum Modernization

Aleksandra Nadiradze (David Tvildiani Medical University, Pathology, 2/6 Ljubljana Str., Dighomi, Tbilisi 0159, Georgia)
Nino Tabagari (David Tvildiani Medical University, Internal Medicine, Tbilisi, Georgia)
Sergo Tabagari (David Tvildiani Medical University, Medical Biochemistry, Tbilisi, Georgia)

Background: David Tvildiani Medical University (DTMU) plans to transform its pre-clinical clerkship curricula for setting learning content into learning context in the framework of TEMPUS project: "Establishment of the Supra-Regional Network of the National Centers in Medical Education, Focused on PBL and Virtual Patients". The aim was to assess the "status quo" regarding students' knowledge (basic and clinical sciences) retention and its linkage with clinical cases and to justify the need for such modernization.

Summary of work: DTMU students of 3rd (69, 2%) and 6th (82,6%) year were given anonymous knowledge test of 13 pairs of questions (E. Lazić et al., 2006) and 12 clinical cases, developed by working group consisting of academic staff specifically for this purpose.

Summary of results: Students from 3rd and 6th year answered basic questions successfully (>60% questions were correct 44, 5% and 42,2% accordingly). For clinical questions: 85, 2% of 3rd year and 84,3% of 6th year students have answered of clinical questions successfully (>60% correct). In clinical cases 11, 1% of basic students has answered >75% of clinical cases, compared to 47, 3% of clinical students. 88,*% of basic students can't answer more than 50% of cases vs. 52, 6% of clinical students.

Conclusions: Retention level of basic knowledge is high for clinical year students. The structure of DTMU MD program enables efficient mapping of basic sciences with clinical content, while putting of the content into particular patient cases is still problematic.

Take-home messages: There is a need for strengthening students' clinical problem-solving and clinical management skills through PBL and VP learning.

2D/5
Teaching differential diagnosis formation during pre-clinical training: first year medical student attitudes toward clinical integration and self-directed learning

Brad Martin (Mayo Clinic, Mayo Medical School, 200 First Street S.W., Rochester, MN 55905, United States)
Joseph Grande (Mayo Clinic, Department of Laboratory Medicine and Pathology, Rochester, MN, United States)

Background: The skill of acquiring medical knowledge through self-directed learning is essential for the practicing physician. The Association of American Medical Colleges (AAMC) agrees that "the maturation of self-directed learning skills and reflection are essential to the development of clinical expertise[1]."

Summary of work: Forty seven first-year Mayo medical students were taught the clinical skill of differential diagnosis formation during the Pathology course and displayed a consistent pattern of self-directed learning stemming from the need to arrive at solutions to problems for which the students had little previous formal instruction.

Summary of results: Students reported via anonymous survey that practicing differential formation before experiencing the formal systems-based curriculum led to their searching through electronic databases to find such solutions (85% respondents), appreciating the place of such clinical skills in future practice (100% respondents), and becoming more comfortable at performing such skills (85% respondents). Further, students reported a belief that they should be learning these skills during the first year (96% respondents) and that they learned information about disease processes not explicitly taught during the course (89% respondents).

Conclusions: We believe that the practice of integrating the clinical skill of differential diagnosis formation early in the medical school curriculum fosters self-directed

learning and positive student attitudes toward such learning.

Take-home messages: Pre-clinical medical students develop positive attitudes toward self-directed learning through early integration of clinical skills in the medical school curriculum.

[1]Recommendations for Clinical Skills Curricula for Undergraduate Medical Education. Task Force on the Clinical Skills Education of Medical Students. Association of American Medical Colleges, Washington DC, 2008 www.aamc.org/meded/clinicalskills/

2D/6

A study to explore the role of SimMan as an adjunct in teaching clinical skills to preclinical medical students

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Thomas Bloomfield (Western General Hospital, Intensive Care Unit, Edinburgh, United Kingdom)
Robert Thomas (University Hospital North Tees, General Surgery, Stockton-on-Tees, United Kingdom)
Harnaik Singh (Freeman Hospital, Newcastle upon Tyne, United Kingdom)
Roger Searle (Newcastle University, School of Medical Sciences Education Development, Newcastle upon Tyne, United Kingdom)

Background: Simulation training has potential in developing clinical skills in preclinical medical students, but there is little evidence on its effectiveness.

Summary of work: 24 first year graduate entry preclinical medical students participated in this crossover study. They were divided into two groups, one performed chest examination on each other and the other used SimMan. A pretest, midtest and post-test was conducted with the same questionnaire (ten questions on knowledge, and confidence levels rated using a Likert scale). They were assessed formatively using the OSCE marking scheme. 23 students completed a feedback questionnaire. Data was analyzed using one-way ANOVA and independent t-test.

Summary of results: When the two groups were compared, there was no significant difference seen between the groups in their pretest and post-test scores on knowledge questions whereas midtest scores increased significantly ($P < 0.001$) with the group using SimMan initially scoring higher. A significant increase in the test scores was seen between pre-test and mid-test for this group ($P=0.009$). Their confidence ratings increased significantly in differentiating between normal and abnormal signs. When their ability to perform examination on each other for both groups was compared, there was a significant increase in the scores of the group starting with SimMan ($P=0.007$).

Conclusions: This study demonstrated a significant improvement in the students' knowledge and competence to perform chest examination after simulation with an increase in their confidence. Students' feedback was extremely positive.

Take-home messages: SimMan acts as a useful adjunct to teach clinical skills to preclinical medical students by providing a more realistic and holistic experience of examining a patient.

2E Research Papers: Education in the Clinical Context 1

Location: Meeting Hall V, PCC

2E/1

Validation of the Interprofessional Collaborative Competency Attainment Survey

Douglas Archibald (University of Ottawa, Faculty of Medicine, Department of Family Medicine, 43 Bruyere St., Room 369y, Ottawa K1N 5C8, Canada)
David Trumpower (University of Ottawa, Faculty of Education, Ottawa, Canada)
Colla J. MacDonald (University of Ottawa, Faculty of Education, Ottawa, Canada)

Introduction: The Interprofessional Collaborative Competency Attainment Survey (ICCAS) is a unique assessment instrument in the field of Interprofessional Education (IPE) as it is one of the first validated surveys to measure the competences of interprofessional care and incorporates a retrospective pre-test/post-test design. The ICCAS includes 20 pre IPE program and 20 post IPE program items, each answered on a seven point Likert scale (from strongly disagree to strongly agree). Items on the survey relate to the elements of interprofessional collaboration (IPC): communication, collaboration, patient/family centred approach, roles and responsibilities, conflict resolution and management, and team functioning.

Methods: Data were collected from research participants who included five hundred and eighty four students and clinicians in Canada and New Zealand registered in 15 interprofessional education undergraduate, graduate, and continuing professional development programs. Several psychometric analyses were conducted using this data set to provide evidence regarding the validity and reliability of the ICCAS. The internal consistency of the ICCAS scale was assessed with Cronbach's alphas. Item-total correlations were computed between individual item responses and the total scale score. Construct validity of the ICCAS was assessed with Exploratory Factor Analyses with Varimax rotation for the pre-test and post-test items.

Results: Paired-samples t-tests were conducted between the pre/post IPE program scores. There was a significant difference in ratings for each pre-test/post-test item of the ICCAS. The 20 pre-test and 20 post-test were subjected to principal components analysis (PCA). The KMO and Bartlett's Test of Sphericity was .96 and .97 for the pre-test and post-test respectively, reaching statistical significance and supporting the factorability of the matrix. PCA revealed the presence of two factors for the pre-test items with eigenvalues exceeding 1, explained 62.9% and 3.8% of the variance respectively. A single factor with an eigenvalue exceeding 1, explained 71.7% of the variance for post-test items. The ICCAS has good internal consistency with Cronbach alpha coefficients of .96 and .94 for the pre-test items and .98 for post-test items.

Discussion and Conclusion: Given the need for a psychometrically sound measure of IPE/IPC competency, we examined the reliability and validity of the ICCAS in a variety of IPE settings. Overall, these data from 584 learners across 15 programs support the ICCAS as a psychometrically sound and valid measure for assessing self-reported attitudes and behaviours toward IPC. It appears from the factor analysis of the pre-test items that the first factor corresponds with individual's own role/skills in collaborating, whereas the second factor corresponds with the roles and functioning of the rest of the team. After the IPE intervention there appears to be only a single factor indicating there is no distinction between the individual and team.

This study shows evidence in support of the reliability and validity of the ICCAS for measuring self-report retrospective pre and post IPE intervention competency attainment for IPC. However, this research explored interprofessional collaboration as a single competence consisting of all the IPC elements. Future research might consider how all the elements of IPC interrelate and explore how the ICCAS can be used with other IPE assessments.

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2E/2

Self-centeredness or patient-centeredness - final year nursing students' learning experiences at a clinical education ward

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Introduction: Clinical education wards have been established giving students more autonomy and responsibility with the aim of facilitating transition from student to professional. In a previous study we found that the most important components in first year students' learning in a clinical ward are mutual relationships with patients and a sense of belongingness in the caring team. This created feelings of both internal and external authenticity. Transformative learning theory is used as a framework concerning learning in this study. The aim was to explore final year nursing students' experiences of learning when they are encouraged to take care of patients independently under supervision.

Methods: Individual and group interviews with 18 students were conducted after their clinical practice. Data were analyzed using qualitative content analysis with a particular focus on students' experiences of their encounters with patients, supervisors, students and other professionals.

Results: The final year students' learning turned out to be very different. Their experiences of being asked to take responsibility and being closely involved in patient care were signified by uncertainty and resistance to engage with patients. The feeling of uncertainty was characterized by self-centeredness and ambivalence. Patients were described from the perspective of performing different tasks. Uncertainty seemed to constitute a threshold for creating relationships with patients and being a part of the caring team. Caring for patients with extensive need for nursing care helped the students to overcome the threshold and experiencing engagement and learning similar to first year students.

Discussion and Conclusion: The comparison between the two groups is interesting in order to better understand how a clinical ward can benefit students on different levels. Threshold concept theory and the concept of authenticity provide a framework for discussion of the results. The final year students become aware of the complex reality, which they will soon enter as active professionals without having someone to rely on for advice on how to tackle challenges. They have started the transition from student to professional nurse and the feeling of uncertainty becomes a hindrance for learning. Faced with responsibility to take care of patients the students seem to experience a threat. The reaction is to distance themselves from the patients, the supervisors and other students and put nursing tasks up front. At the same time they look for guidance and support. A clinical education ward, with explicit pedagogical framework, offering both challenges and support provides opportunities for final year students to overcome their uncertainty and become patient-centered in their learning. The experiences of both external and internal authenticity seem to be important for student learning in clinical practice. External authenticity is reached by being in a ward taking care of patients. Internal authenticity is experienced when the

students get the opportunity to create and develop mutual relationships with the patients. The complex learning processes, involving complex constructions of learning thresholds, of final year nursing students need to be further explored and handled by supervisors.

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2E/3
The effectiveness of service learning: A critical review of the literature

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Introduction: Service learning (SL) is increasingly used as a pedagogical tool by healthcare educators worldwide (1). There is a paucity of information on the impacts of SL on students' learning outcomes and the difficulties of transferring SL from one location to another. This review aims to: i)identify the reported impacts of SL for healthcare students; ii) highlight gaps in our understanding of this pedagogical approach and iii) provide guidance on priority areas for future research. This work is timely as it evaluates the emerging international evidence base on the impacts of SL and the challenges of localisation (2).

Methods: A critical review of the literature. Seven databases were searched for all available literature on the impacts of SL for undergraduate healthcare students. Data was extracted relating to research aims, population and sample size, design and data collection method(s), key findings, type of measure(s) used and the nature of the impact(s) reported. Six categories of learning outcomes guided analysis including (i) personal and interpersonal development, (ii) understanding and applying knowledge, (iii) engagement curiosity and reflective practice, (iv) critical thinking, (v) perspective transformation and (vi) citizenship (3).

Results: The initial search identified 1485 papers. 1423 were excluded for failing to meet the inclusion criteria. Screening the bibliographies of the remaining 62 papers

identified a further 15 relevant studies. Following quality appraisal the set of 77 was reduced to 53 eligible papers for detailed analysis. This review highlights the lack of clarity in definition and understanding of SL and confirms the paucity of literature on the impacts of SL. Civic awareness is an explicit aim of SL yet only a minority of studies reported changes in this domain. Positive learning outcomes are primarily reported in students' personal and interpersonal development which includes interesting gains in cultural competence and comfort in collaborating with the 'different other' (4-5).

Discussion and Conclusion: SL is a complex educational approach involving communities, students and institutions with the aspiration that the shared relationship is equally beneficial and reciprocal. The idiosyncratic nature of SL experiences makes it difficult to identify definite learning outcomes that can be generalised. Future studies based on the interpretative paradigm focused on the process rather than the outcomes of SL may expand our understanding of this pedagogy. Currently, the evidence base to support the use of SL in undergraduate healthcare curricula is not established which creates opportunities and challenges for those considering introducing this teaching approach. We encourage educators to continue to share evidence about the impact(s) of SL from rigorous study designs by transforming tacit knowledge into tangible research questions. Exploring questions around: 1. Defining SL; 2. How SL experiences lead to particular academic and partner outcomes; 3. The nature of the evidence and measurement tools being used; 4. Whether the unique features of SL are being evaluated as outcomes; 5. Whether participation in SL has long term impacts and 6. What will make this pedagogical approach most educationally effective will create new evidence enabling us to make informed decisions about the implementation of SL in healthcare education.

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2E/4
Reliability estimations of the mini-CEX using traditional and construct-aligned scales

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Introduction: Recently, Crossley et al. have demonstrated that in real life settings Mini-CEX scales constructed to reflect the development of clinical sophistication and independence (CS) have higher utility than the traditional ones (TS), since they are more reliable and therefore raises the evidence of greater validity (1, 2). The aim of this study is to reproduce these findings in a controlled setup and to evaluate the different variance components in both scales.

Methods: Three encounters were videotaped from 21 residents (R). The patients were the same for all R. Each encounter was assessed by 3 assessors (A) who assessed all encounters for all R. The A assessed the encounters twice. The first time they assessed the encounters using the TS and 30 days later with the CS. Each A was an internal medicine specialist from outside the institute and was blinded to the level of expertise of the R. All of them had previous experience with the mini-CEX and were involved in medical education. This delivered a fully crossed (all random) two-facet generalisability design each time (3).

Results: For both scales, a third of the total variance was associated with universe score variance, TS: 36% vs CS 29%. The largest source of variance in the TS was of general error (49%), followed by the main effect of assessors (7%). In the CS the largest source of variance was of general error (34%) followed by the assessors' variability for some residents (23%). Generalisability coefficients indicated that for both types of scales an approximate sample of 7 encounters was needed, assuming both the presence of one different assessor per encounter and the presentation of different cases per encounter (the usual situation in real practice): 4 encounters when 2 raters were used and 3 encounters in case 3 raters were used.

Discussion and Conclusion: According to the results obtained and contrary to our expectations the TS and the CS showed similar performance in terms of sources of variance and in the resulting reliability. Unexplained general error appears to be the major cause of unreliability of both scales followed by the assessor leniency/stringency in the TS and the assessors'

variability for some residents in the CS. The explanation for these results may be that assessors were blinded to the level of expertise of the residents. Although CS were carefully built and aligned with the priorities and the 'reality map' of those who they would further assess, the knowledge of the level of expertise of the residents could be central as a frame of reference to enhance reliability of CS (4,5). In conclusion traditional scales and construct-aligned scales showed similar performance in terms of sources of variance and in the resulting reliability.

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2F Short Communications: Assessment: OSCE 1 – Standard setting and scoring

Location: Chamber Hall, PCC

2F/1

Comparison of Absolute and Borderline Regression Standard Setting Method in Evaluating OSCE Performance

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Background: Harden et al. explained that OSCE offered the advantages of controlled grading criteria and easy repeatability of the examination. Studies have shown that OSCEs help students develop procedural, communication and physical examination skills. Standard setting is one of the essential issues of OSCE, Our faculty has been using the absolute method but has never analyzed it. The Indonesian National Association for Competence Examination has been using borderline regression method for National OSCE try out but the analysis has never been published. This research was performed to compare absolute and borderline regression standard setting method to investigate which procedures would be most effective in determining proper cutoff score in OSCE.

Summary of work: The research was performed in our eight stations third year final semester OSCE with a total of 232 students. The results were then analyzed with absolute and borderline regression method using Microsoft Excel 2003.

Summary of results: Using borderline regression method the average remedy students was 49.25 with average cut off score 60.5% while using absolute method with the cut off score 80%, the average remedy students were 126.25.

Conclusions: The results for the third year showed that the borderline regression method is reasonable and is justifiable and credible in determining pass standard. It can be done right after the examination and is efficient. The weakness of this method is that the pass score cannot be determined before the assessment.

Take-home messages: More research has to be performed in using more standard setting methods which include the students' point of view on this method.

2F/2

The Objective Borderline Method: A probabilistic approach for standard setting

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Background: Despite the availability of standard setting methods, the determination of Pass/Fail decisions in clinical examinations remains problematic. The objective borderline method (OBM), employing a probability approach to reclassify borderline grades, has been recently introduced. This study describes a modification of the OBM (OBM2) that uses two parameters (examinee ability and item difficulty) to determine the probability that a Borderline grade is a Fail or Pass.

Summary of work: Examinees' borderline grades from clinical examinations were reclassified as Pass or Fail based on the probability, derived by the OBM2 method, that a Borderline grade was likely to be a Pass or Fail in two different ways: OBM2-Pass (probability of Borderline to pass) and OBM2-not-fail (probability of Borderline not to fail). The overall examination outcomes were compared using the original grades and the reclassified grades.

Summary of results: The overall examination outcomes of both OBM2 models were more stringent than the original method and as expected, the OBM2-Pass was stringent than the OBM2-not-Fail. Nonetheless, the OBM2-Pass had the largest positive predictive value (.95) for predicting success in clinical examination of the subsequent year.

Conclusions: The OBM2-Pass model is a simple, statistically robust and valid method for making Pass/Fail decisions over Borderline grades.

Take-home messages: Using a probabilistic approach for making Pass/Fail decisions over Borderline grades is more practical and more defensible than other methods. Further research into this developing topic is needs.

2F/3

How low can you go? Measuring the error in OSCE standard setting for a range of cohort sizes

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Background: The use of the borderline regression method (BRM) is a widely accepted standard setting method for OSCEs. However, it is unclear whether this method is appropriate for use with small cohorts (e.g. specialist post-graduate examinations).

Summary of work: This work investigates how the robustness of the BRM changes as the cohort size varies. Using re-sampling methods and pre-existing OSCE data from two institutions, the 'quality' of an OSCE is evaluated for cohorts of approximately n=300 down to n=15. The error in pass marks, r-squared coefficient, and Cronbach's alpha are all used as metrics of assessment quality.

Summary of results: The re-sampling approach proved robust, producing replicable results. For larger cohorts (n>200), the standard error in the overall pass mark is small (less than 0.5%), and for individual stations is of the order of 1-2%. These errors grow as the sample size reduces, with cohorts of <50 candidates showing unacceptably large error. Alpha and r-squared also become unstable for small cohorts.

Conclusions: Institutions working with small cohorts need to carefully consider whether their standard setting methods are sufficiently robust. If possible, the errors in the standard setting should be estimated and steps taken to ensure defensible pass/fail decisions are made. Using an innovative methodology, this work shows that the BRM is highly robust at large cohort sizes, but that for n<50 become subject to large errors.

Take-home messages: With cohort sizes below 50, institutions should be aware of the potentially large errors in standard setting, particularly under the BRM.

2F/4
Estimating the Reproducibility of OSCE Scores When Exams Involve Multiple Circuits

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Background: Schools commonly administer full-class OSCEs using multiple circuits at different sites and times. Estimation of score reproducibility is difficult because circuits can differ in difficulty when the "same" stations are used because different markers and standardized patients are involved.

Summary of work: A new generalizability-theory-based method was developed to examine score reproducibility on 15-station end-of-year OSCEs taken by 276 students in the SGUL MBBS course in 2010 and 302 students in 2011. Stations used checklist-based scoring in 2010 and ratings-based scoring in 2011. Ratings-based scores were found to be less reproducible because of greater variation in the stringency of examiners marking the same station in different circuits.

Summary of results: Rather than running a persons-by-stations ANOVA ignoring circuits, the new method involves running a persons-by-examiners-nested-in-circuits ANOVA, then adding stations to the design to control for overall differences in station difficulty, and working with the two sets of resulting variance components to separate variation due to overall station difficulty from circuit-specific variation in examiner stringency. From a practical standpoint, a persons-by-stations ANOVA ignoring circuits produced an estimated generalizability for ratings-based scores for short

stations that was several hundredths larger than for checklist-based scores; the reverse was true when the new method was applied.

Conclusions: In designing and evaluating checklist-based and ratings-based scoring methods for OSCE stations, variation in examiner stringency across circuits should be taken into account in analyses of score reproducibility.

Take-home messages: Confounding of examinee ability and circuit difficulty in multi-circuit OSCEs should not be ignored in analyzing reproducibility of scores.

2F/5
A clarification study of internal scales clinicians use to assess undergraduate medical students

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Background: Clinicians hold internal constructs which they use to make often intuitive judgements about learners and colleagues. Grading scales which align with these internal scales may be more reliable. This study aims to understand the constructs clinicians use to make judgements of undergraduate medical students' consultation skills and whether we can develop construct aligned scales for their assessment.

Summary of work: JL and CH conducted semi-structured face-to-face interviews with 15 clinicians with a minimum of 2 years' experience in OSCE examinations of undergraduates at one English Medical School and were also actively practicing and teaching. Interviews were audio-recorded. During interviews clinicians were asked to draw assessment scales for assessment domains and populate them with words and phrases which described the range of student performance. The audio-recording and scales from each interview were analysed by the interviewer and a researcher using framework analysis informed by realist theory. Emerging scales for each construct were reviewed in round-table meetings and fed back to subsequent participants. The finalised scales will be reviewed in a focus group with clinicians who participated.

Summary of results: Details of the results will be presented: preliminary results suggest that clinician assessors hold internal scales which they can use to describe meaningful scales though individual assessors weigh the importance of particular scales differently.

Take-home messages: This work suggests that designing assessment scales more aligned to the internal scales clinicians use to assess undergraduate medical students is feasible. Further work is needed to investigate reliability and generalisability of the scales.

2F/6

Simplified Scoring for the Medical Council of Canada's Part II (MCCQEII) Examination: Does expert weighting make a difference?

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Background: Current scoring schemes for the MCCQEII OSCE often include expert weighting of items, rating scales and even stations. The assumption is that these weights yield a more valid measure of clinical competency. However, there is relatively little empirical evidence that supports the assumption that complex weighting schemes impact score and decision reliability. The purpose of this research was to assess whether such weighting improved classification decisions on the MCCQEII, required as part of medical licensure for Canadian medical graduates.

Summary of work: Four scoring models were applied to three past administrations of the MCCQEII: (1) Complex/Component (item and component weights); (2) Complex/Station (item weights no component weights); (3) Simple/Component (no item weights, component weights) and; (4) Simple/Station (no weights). Reliability estimates, pass/fail rates, and classification decisions were compared across the four scoring models.

Summary of results: Score reliability values (Cronbach's alpha) ranged from 0.74 to 0.78, with a slight increase noted for the simplest scoring model. Pass/fail rates varied slightly across the scoring models, but these differences were quite small in magnitude (less than 3%). Classification decisions were very consistent across scoring models (accuracy 0.87 to 0.99; consistency 0.82 to 0.98), which suggests that 82% to 99% of the decisions were accurately or consistently applied in the pass/fail categories, regardless of whether or not complex weighting was implemented.

Conclusions: Results indicate that using a simplified scoring model (no weights) yielded reliability estimates (both for scores and more importantly decisions) that were virtually identical to those obtained with more complex weighting schemes.

Take-home messages: Consequently, for the MCCQEII, there appears to be little empirical evidence to support the use of complex scoring approaches. As an added benefit, adopting a simplified scoring model would ease the efforts required by our medical experts to develop these weights.

2F/7

Effects of changing from checklist to rating scale scoring for OSCEs

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Background: Originally, OSCEs were scored on checklists tailored to station content. This approach has been criticized for rewarding thoroughness and trivializing the skills assessed, and some have moved to use of multi-item rating scales to better capture students' increasing clinical expertise.

Summary of work: OSCE station scoring for the SGUL MBBS course was changed to rating scales for the clinical years from 2011. This study examined the impact on mean scores, pass marks, and pass rates.

Summary of results: On a percentage-of-possible-points scale, mean scores declined from 70.4% in 2010 (checklists) to 66.4% in 2011 (ratings); passmarks set using (identical) borderline regression methods declined from 57.4% to 46.3%; mean differences between scores and passmarks increased from 13.0% to 20.2%; and pass rates increased from 96.7% to 99.7%. Reproducibility of total scores was lower for rating scales than checklists due primarily to larger differences in the stringency of examiners marking the same station. Interestingly, the reproducibility of global ratings used in standard setting was also lower in 2011 than 2010.

Conclusions: The change from checklists to rating scales did not result in the expected improvement in the reproducibility of total scores and pass rates dropped to almost 0, raising questions about the utility of ratings (or our implementation of them.)

Take-home messages: Further investigation into the use of checklists and rating scales for scoring OSCE stations is merited. A blend of methods may be warranted to aid in standard setting and reducing variation in examiner stringency.

2G Short Communications: Curriculum Planning

Location: Conference Hall, PCC

2G/1

Comparing a spaced format of an emergency medicine block course with a compressed format in their impact on students' test scores in a key-feature test

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Background: Spacing of teaching sessions may provide the learner with more opportunities to elaborate and process learning contents. Hence, distributing a certain amount of teaching hours over a longer time period (spaced format) may result in better learning than delivering the same amount within a shorter time period (compressed format). We wanted to evaluate this effect for an emergency medicine block course (EM-BC) on students' procedural knowledge.
Summary of work: In the fifth year of an undergraduate medical curriculum an EM-BC of 26 teaching hours was delivered either within 3 days, or 4.5 days. At the end of the course students' procedural knowledge was assessed by a specifically developed video-based electronic key-feature test.
Summary of results: From 191 eligible students 156 data sets could be completely evaluated, 54 students from the spaced version, and 102 students from the compressed version. Socio-demographic characteristics and drop out rates were similar between groups. In the key-feature-test with a possible maximum score of 22 points students from the spaced format reached a median of 15 points (13-16; 25.-75. percentile), and students from the compressed format reached 13.5 points (12-15); Cronbach's alpha was 0.63. The observed difference was 8.5% of the median test score, being highly significant (p = 0.002) at a moderate effect size (Cohens d = 0.53).
Conclusions: A spaced distribution of teaching hours resulted in a moderate increase of procedural knowledge if compared to a compressed distribution.
Take-home messages: Spacing of teaching units may produce moderate gains in cognitive learning.

2G/2

Comparison of medical students' learning approaches in a traditional versus integrated lecture-based curricula

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Background: Students' learning approaches can be influenced by the teaching and assessment characteristics of curricula. In many European countries, political constraints oblige medical schools to select students during the first study year. Because of the large number of students, the teaching environments are often lecture-based and assessments anchored on factual knowledge through highly selective MCQ tests. This could impact the deep learning approach necessary to develop clinical reasoning.
Summary of work: We compared first-year students' learning approaches in two French-speaking learning environments (Geneva G and Lyon L), offering similar teaching (lectures) and assessment (MCQ) formats, but displaying different curriculum organization (G thematic integrated modules vs L traditional). The study process questionnaire (R-SPQ) was administered to 1947 first-year medical students (1654 in L, 293 in Geneva). Multivariate general linear models were conducted to compare deep-(DA) and surface-(SA) approaches to learning in both environments.
Summary of results: Compared to L-students (DA 2.91, SA 2.49 on a scale of 5), G-students used deeper and less surface approaches (DA 3.20, SA 2.35, p<0.001). L-students focused more on the target (L 3.37, G 3.26, p<0.05) and applied more rote learning (L 2.36, G 2.01, p<0.001).
Conclusions: Despite lecture-based and MCQ-assessed, an integrated curriculum seems to favor students' deep learning approaches, compared to a traditional curriculum.
Take-home messages: An integrated selection-year curriculum might partly compensate the potentially detrimental influence of lecture-based teaching and factual assessment on students' approaches to learning.

2G/3

Effectiveness of Integrated Curriculum at a Public Medical College of Kashmir: A Participatory Action Research Report

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Background: AJK Medical College is the 1st public sector medical college in Pakistan to adopt an outcome based integrated undergraduate curriculum. To contextualize the training of future physicians and make Basic Health Sciences (BHS) instruction more relevant to the clinical practice; AJKMC introduced integrated, system-based Modular curriculum at undergraduate level. The authors are the members of Curriculum Committee, involved in iterative loops of participatory action research, mandated to refine the dynamic curriculum through informed decisions based on local experience.
Summary of work: Six Modules of 1st Year MBBS class were indigenously conceptualized, developed, delivered and evaluated in year 2012 by multidisciplinary teams. The learning outcomes were explicitly defined in respective study guide of Module, which included theme-based core contents; learning outcomes; Teaching & learning strategies; TOS, Tools of assessment; time table; student support & troubleshooting mechanisms. The Study Guides of each module provided road map to faculty and students' learning. Each module was assessed by written assessment and integrated practical examination (IPA-an integrated 17 station OSPE). All modules were evaluated by a focus group and a pilot tested semi-structured questionnaire, administered to voluntary participants among faculty and students of class of 2016.
Summary of results: Triangulation of quantitative & qualitative data revealed positive perceptions of students & faculty about integrated curriculum. The response rate of voluntary participants was 98%. 96% students validated the teaching strategies and 92% perceived the assessment valid, fair and reliable. 95% strongly agreed to continue the integrated curriculum and IPA.
Conclusions: Integrated curriculum enhanced students' motivation for self-directed life-long learning.
Take-home messages: Integrated curriculum can be implemented in a resource constrained environment; however, it demands a strong institutional leadership role.

2G/4
"Being a doctor here is a misery". How to train doctors for the reality of practice in Sub-Saharan Africa

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Background: Sub-Saharan African health care faces a heavy disease burden and radical physician shortages. Scaling up the quantity and quality of doctors is urgently needed. A factor affecting quality of doctors is the curriculum, but evidence on outcomes of curricular innovations in Sub-Saharan Africa is lacking.
Summary of work: We investigated how graduates and fifth-year students from an innovative medical curriculum (problem- and community-based), compared with a conventional curriculum (lecture- and discipline-based), in a Sub-Saharan African context (Mozambique) felt their education (had) prepared them for practice. We administered a questionnaire (n=157), conducted semi-structured interviews (n=20), and collected diaries (n=10).
Summary of results: We identified six tensions between local Mozambican reality and 'ideal' medical practice, which heavily challenged doctors' motivation and preparedness for work. Four elements of the innovative curriculum equipped participants with skills and competencies that helped balancing between these tensions, which increased motivation and preparedness for practice (mainly medium to large effect sizes).
Conclusions: Our results suggest that problem- and community-based curricula may hold special promise for Sub-Saharan Africa, as our effect sizes are unmatched in studies conducted elsewhere. The challenges faced in a Sub-Saharan African context seem of such magnitude, however, that medical school alone seems unable to fully prepare doctors.
Take-home messages: Curricular innovation in Sub-Saharan Africa helps doctors - perhaps more than elsewhere - to tackle local challenges, but is not enough on its own. Joint effort by relevant stakeholders is needed to improve health care systems and medical education in this region.

2G/5
Application of efficient instruction of medical curriculum across multiple geographic locations in times of limited resources

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Background: The global prevalence of economic crisis, limited resources and underserved populations calls for new means of delivering efficient yet effective medical education. Medical educators are challenged with allocating restricted assets to produce a more resourceful and beneficial education system.

Summary of work: Two University Physician Assistant programs efficiently implement their medical curriculum across distant geographical teaching sites through varied approaches, which will be compared and contrasted.

Summary of results: The University of Washington delivers an asynchronous standardized curricula, in combination with synchronous examinations across its distant campuses. This approach draws on local provider lecturers at each satellite site. The result is an integration of the program with the local medical community and additional clinical sites. Idaho State University synchronously delivers its standardized curricula utilizing distance technology to link distant campuses to create a single virtual classroom. Both programs use technology, and online learning management systems to implement their program's curriculum. Distance education technologies offer alternatives for medical education to respond to converging information and communication trends. Likewise, the engagement of the local medical community in the educational process facilitates the integration of the medical program, with its students, into the local community.

Conclusions: With either approach a single university can bridge their curricula, pedagogy and organizational structure across geographically distinct campuses more efficiently. Performance outcomes and student satisfaction surveys have shown no statistically significant differences between sites.

Take-home messages: Limitation of resources and a need to train more providers to meet the needs of society requires innovation and the leveraging of technology to drive efficient delivery of medical education.

2G/6

Curriculum design: The "English garden" model

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Background: Classic English cottage garden evokes a natural feeling, looking as if no planning was necessary to create their beauty.

Summary of work: When designing an English garden three steps should be followed.

Summary of results: The first step is to select three to four main colors to create continuity within the garden. The three main longitudinal themes of our curriculum are basic sciences, clinical skills and clinical presentations / examination objectives. Although free flowing, English gardens do need a certain amount of structure. The structure of our curriculum is provided by study guides, personal learning plans, learning portfolios, mentoring and peer review. A third important ingredient in an English garden is the "accessories" or in other words, the structures or the "whimsy": a gate, a bench or a water feature. In our curriculum the "accessories" are provided by the authentic activity in the communities of practice the learner is exposed during the training period.

Conclusions: The "English garden" model for curriculum design refers to the active involvement of learners in authentic activities within specific communities of practice, and is based on our cultural background and available teaching staff and infrastructure.

Take-home messages: Our curriculum is grounded on the theories of cognitive apprenticeship and situated learning.

2H: Short Communications: Curriculum: Community Oriented Medical Education
Location: Club H, PCC

2H/1
The Impact of Integrated Public Health Teaching among Final-Year Medical Students

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Background: Department of Public Health reformed its curriculum for the final-year medical students in the autumn 2012 by focusing on prevention and integrating teaching of theory oriented topics such as health promotion, epidemiology and biometrics and everyday work oriented topics such as occupational health and healthcare organization. Our aim was to study how this change affected attitudes of medical students on public health, prevention, epidemiology and biostatistics.
Summary of work: Questionnaires were collected in the beginning of the final-year public health teaching and in the end of teaching period of four months. Response rates were respectively 50% and 75% (total number of students 123). The sixteen questions included several statements about the attitudes towards teaching and topics graded by a 5-point Likert scale. A statistically significant change in the responses was tested by individual transitions between baseline and follow-up response.
Summary of results: Significant changes were observed in students' improved understanding of the basic concepts of epidemiology and biostatistics and in the opinion about the ability to use AUDIT (Alcohol Use Disorders Identification Test) much better (p<0.001). A better understanding of sources of error and uncertainty in scientific studies was achieved (p=0.002) as well as increased interest in epidemiology and biostatistics. Medical undergraduate students also changed their opinion in favor of a more tight border control as a mean for better control of the use of alcohol, drugs and tobacco (p=0.03, linear by linear).
Conclusions: The new integrated public health curriculum was able to change short term attitudes on public health among the final-year medical students.

2H/2
Defining and measuring quality in community-based medical education: Developing an adaptable audit tool

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Background: There has been a shift towards undergraduate education in the community following the GMC recommendations in Tomorrows Doctors. The University of Liverpool's MBChB Community Studies Unit programme has over 200 practices that host medical students however the quality of these placements are not comprehensively audited. The literature review revealed a gap in both research and practice in this area.
Summary of work: This piece of work defines the standards of a good quality community medicine placement for undergraduates. The data was collected using a combination of focus groups and semi-structured on-to-one interviews. Transcripts were analysed to produce a cumulative and collective representation of the stakeholders' opinion. A single analyst approach employed a variant of Thematic Content Analysis. The resulting Quality Toolkit can assess quality of community placements for medical undergraduates.
Summary of results: The results yielded a simple yet multi-dimension audit tool, which is currently being validated. The feedback produced is useful to reassure and congratulate good practice and suggest improvements in areas of weakness. Although this tool was produced from the stakeholders at the University of Liverpool, the intension is to share good practice; with minimal adaptations this tool could be used to audit community placements hosting students from Universities throughout the UK and internationally.
Conclusions: Ensuring consistent quality of placements for undergraduates requires an evidenced-based, holistic approach. This work proposes an adaptable, practical and useful way to ensure this.
Take-home messages: An adaptable tool to holistically and consistently assess the quality of community placements for medical undergraduates at the University of Liverpool.

2H/3
The outstanding features of Community based learning (CBL) of Chiang Mai University (CMU)

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Background: 21th Century medical education prefers doctor with a community orientation. Community health management is the unavoidable responsibility of every doctor. Medical curriculum with CBL is necessary. The medicine course of CMU included CBL in 2nd-5th year level of the 6th year curriculum.
Summary of work: In the 2nd year, Med-students study epidemiology, community research, and start experience in community surveys. In 3rd year, Med-

Students visit villages and find out the common health problems. They learn team working, analyzing information, and problem solving. 4th year med-student spend a month in rural area hospitals. They have opportunities to treat patients and study primary health care and referral system. Fortunately, it's the time that they have chance to work with community health personnel. Interestingly, Med-students in 5th year approach community research, make manuscript and poster presentation reports to Faculty. The valuable data and solutions are sent back to the relevant authorities and hospitals for health promotions.

Summary of results: In the five years of experience, Med-students learn much not only health problems and research, but also health policy and organization. Importantly, they have ability in communication skills, learning by doing, self-directed learning and cross-cultural understanding. They achieve volunteering, creative thinking and social mind. Together, these abilities mold them to work and adapt to great changes in society effectively.

Conclusions: The doctor is a key person who could change global health; therefore they have to fulfil their experience during study MD.

Take-home messages: Family and Community Medicine is the most essential subject for Med-students to become a doctor in global medicine.

2H/4
Continuous program of Community-based Education: Facilitating the continuity of health program

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Background: Most CBE programs are conducted in a single activity. We aimed to evaluate how continuous CBE program improve students' learning as well as the health of malnourished children under five.

Summary of work: In collaboration with Community Health Centre (CHC), first group of students identified malnourished children under five, analysed factors influencing the disease and implemented health education to mothers. One month later, the second group of students visited the identified malnourished children, screened for tuberculosis, and evaluated mothers' compliance in feeding their children. Students' work was followed up by CHC. Qualitative data was used to collect data on students' activities, students' perceptions, and community perceptions. One year later, body weight and health status were measured as information of those children.

Summary of results: Continuous CBE program resulted in active community participation. Students perceived that their experiences were basically in accordance with community needs, and felt that the community also experienced the benefits of such continuous activities. One year later, however, only 67% of the identified malnourished children were cured. Those with tuberculosis, were only 69% cured.

Conclusions: Continuous CBE program is not only beneficial to improve students' learning, but also useful to facilitate the continuity of the health program in community settings.

Take-home messages: To increase the benefit for the community, the CBE program of each group can be adjusted in that particular phase, and the next groups of students can also be used to follow up.

2H/5
An analysis on the basis of Ege University School of Medicine's experience: How probable is community-based education under market-oriented reforms in university hospitals in Turkey?

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Background: Community-based-education necessitates close collaboration of health authorities and medical schools and needs to immerse students in key relationships of clinical, institutional, social, and personal axes, as proposed by Worley.

Summary of work: Community-based-education activities of Ege University School of Medicine from 2000 to 2009 were analysed considering key relationships defined by Worley. Also functional relationship of health authorities and the school was assessed according to the taxonomy defined by Lewkonia. Between 2000 and 2009, students studied in community hospitals and primary care centers. Primary care centers were equipped by university as teaching sites, and various professional development activities were organized.

Summary of results: Community-based-education involved clinical, institutional and social axes. Clinical axis included early-patient-encounters in primary care and internship in community hospitals. Besides, faculty development and continuing professional development programs for primary care workers were organized. Institutional axis included practice-based-research-networks, and social axis involved health politics training within vertical community health corridor curriculum. On the basis of the taxonomy of functional relationships, mixed-method-design project on priority health problems was assessed as "contiguity" type relationship. Equipment of primary care centers by university corresponded to "interdependence".

Conclusions: Considering this experience, recent legislations related to medical education were reviewed. Performance-based remuneration resulted in decreased interest of faculty staff to education. Privatization of primary care ended with abolishment of affiliation protocols. Recent legislation on affiliation increased the authority of General Insurance Institution and Ministry of Health over academic medicine, which could limit academic autonomy of medical schools.

Take-home messages: Health care reforms need to be carried out considering its influences on medical education.

2H/6
A novel approach to teaching in undergraduate paediatrics: making the most of experience

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Background: Pairs of year-2 medical students are attached to a pregnant woman and follow infant and family development with regular home visits throughout the remainder of their MBBS course. They are supported with regular small-group tutorials. This pilot study provides students with a longitudinal experience of factors impacting on a child's health and development.
Summary of work: With support from programme organisers, data was collected from students' applications, a student evaluation survey and tutor feedback. Thematic analysis was performed by the authors who were external to the programme.
Summary of results: Students' applications show good alignment of their expectations with those of organisers and tutors, although perhaps they overestimate their exposure to paediatrics as a specialty. Students' initial experiences were similar and overwhelmingly positive. Over 90% of students agree that the tutorials are useful, they are learning from the experience and the programme is what they expected. However, qualitative survey data suggests students are having diverse experiences, which need to be harnessed to maximise potential learning. An 'external' perspective aids integration and distribution of learning potential.
Conclusions: 1.Tutors, organisers and participants should share common expectations to maximise learning. 2. Given the expected variability of experiences in a 'clinical' setting, an awareness of themes and patterns is important to effectively distribute learning across the cohort.
Take-home messages: Learning in a complex 'clinical' setting is likely to be opportunistic, unpredictable and disjointed. A mechanism for integrating and distributing ad hoc experiences maximises potential learning in this challenging but worthwhile context.

2I Short Communications: Assessment
Location: Club A, PCC

2I/1
Incorporating context factors in communication assessment

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Background: In competency-based specialty training, the assessment of communication performance usually focuses at rating generic communication skills. However, in daily practice, communication seems determined by (specific) context factors, such as acquaintance with the patient, or the presented problem. Merely valuing the presence of generic skills may not do justice to the GP (trainee) proficiency. So far, in communication assessment, context is only implicitly incorporated.
Summary of work: We explored how assessment of GP and GP trainee communication performance changes if previously identified context factors are explicitly taken into account.
Summary of results: A scoring protocol was developed to incorporate context factors into performance assessment. Mean overall score on the 7-point MAAS-Global scale increased from 2.98 in standard to 3.66 in the context-specific rating (p=0.000); the effect size for the total mean score was large (0.84). In GP trainee scores, we found a significant difference in 5 out of 13 MAAS-Global items. The effect size was moderate (0.57).
Conclusions: Contextual factors affect communication performance. Incorporating contextual factors in workplace-based assessment of communication has more influence on GP scores than on GP trainees. Context factors should be considered as 'signals' instead of 'noise' in communication assessment.
Take-home messages: In assessing communication performance of GPs and GP trainees in daily practice, contextual factors are identifiable and should be taken into account by making explicit scoring rules. GP training needs to focus on a context-specific application of generic communication skills. Communication raters need to be taught how to incorporate context factors into their assessments.

2I/2
Generating communication and medical performance profiles for assessment of trainees during patient encounters

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Background: Assessing a sample of video observations can reveal repeating behavior in general practice (GP) trainees. Feedback on these patterns might be of great interest in enhancing learning. Providing a series of distinguishing profiles is an essential step to test this hypothesis.
Summary of work: From November 2012 till January 2013, semi-structured interviews regarding observed patterns in GP trainees, were performed with 18 GP trainers of the Department of Vocational Training at Maastricht University. The interviews are analyzed according to the constant comparative method in order to retrieve underlying themes that trainers used in describing observed patterns.
Summary of results: Qualitative analysis of the interviews is performed at this moment. We expect to create a variety of profiles from the descriptions and retrieved themes. These profiles will be used to rank trainees on their communication and medical performance during patient encounters.
Conclusions: As far as we know this is the first study that investigates behavioral patterns in depth. Results will be presented during the AMEE congress 2013. GP trainers distinguish a variety of behavioral patterns in their trainees. With these behavioral patterns we are able to construct profiles. Further research is needed to investigate whether feedback using profiles can enhance learning in trainees.
Take-home messages: Video observation provides the opportunity of giving feedback on behavioral patterns. This feedback might be of great interest in enhancing learning, as it is about authentic behavior, that is repeating.

2I/3
What factors impact on Mini-CEX assessor judgements in the postgraduate setting? A Systematic Literature Review

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Background: WBAs are recognised as valid and reasonably reliable low-stakes assessments of performance in the workplace. Of these, the Mini-CEX is

the most validated and investigated assessment tool. However, the factors which impact on assessor judgements of workplace performance in the postgraduate setting has not been well researched.

Summary of work: A systematic literature review forming part of a Masters in Health Professional Education by thesis work will be presented. The aim is to review the literature and investigate what factors impact on assessor judgements when performing Mini-CEX in postgraduate medical training.

Summary of results: The literature review methodology will be described and the data extraction and quality assessment using BEME guide no. 11 will be presented. Using the PICO framework, the search strategy of 4 databases returned 1429 articles for review. 8 studies met the inclusion and exclusion criteria for the review question. 7 of the 8 studies were quantitative but it was the single qualitative study that best addressed the review question. The major factor contributing to score variation is assessor variability, usually measured as stringency. Other factors are case specificity and trainee variability. The effect of rater training remains uncertain. One proposed model suggests assessors use their own frames of reference and inferences to convert observations into numerical scores. There are also factors external to the observed performance.

Conclusions: Currently little is known about the cognitive and contextual factors which impact on Mini-CEX assessor judgements in the postgraduate setting.

Take-home messages: More research involving asking how assessors make their Mini-CEX judgements is required.

2I/4

Construct validity of a framework for assessing ultrasound skills – the Objective Structured Assessment of Ultrasound Skills

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Background: Ultrasonography has become increasingly used in many medical specialties. Although considered a safe procedure, it relies greatly on the skills of the operator. Therefore, the ultrasound societies recommend 200-300 supervised scans before independent practice. However, this does not necessarily guarantee proficiency for all, while some may need fewer supervised scans to become proficient. Thus, there is a need for validated assessment instruments to enable proficiency-based training of ultrasound practitioners.

Summary of work: 5 novices, 5 intermediates, and 5 senior Obstetricians-Gynecologists managed one transvaginal ultrasound examination. All examinations were video-recorded to allow assessment by two independent blinded raters. Performances were rated using the Objective Structured Assessment of Ultrasound Skills (OSAUS), which was developed in a previous consensus study.

Summary of results: The novices, intermediates, and seniors scored a mean OSAUS-score on the transvaginal scans of 1.60 (SD 0.37), 3.08 (0.23), and 3.48 (0.64), respectively. An ANOVA showed significant differences between groups (P<0.001). A post-hoc analysis showed significant differences between the three groups with regards to items relating to applied knowledge of examination, image optimization, systematic examination, and documentation of examination. Only the item 'interpretation of exam' did not differ between intermediates and experts.

Conclusions: The OSAUS framework possess construct validity in terms of reflecting increasing levels of ultrasound skills and may be used for future in-training assessment purposes.

Take-home messages: Ultrasound training should include in-training assessment using validated instruments.

2I/5

Predictors of Physician Performance on Competence Assessment

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Background: Ensuring that physicians are practicing safely and effectively is a critical role of licensing agencies, hospitals and other credentialing entities. Competence assessment and remedial education programs play an important role in helping these organizations identify physicians who are not safe to be in independent practice and for whom remediation would be difficult.

Summary of work: We conducted a retrospective analysis of 683 physicians who completed a competence assessment. Factors predictive of an unsafe outcome were determined using multivariate logistic regression.

Summary of results: Physicians were more likely to have an unsafe outcome if they were in solo practice

(p=0.023) or if they had previous board action (p=0.004). Physicians were more likely to have an unsafe outcome for each year of increasing age (p<0.001). Board certified individuals (OR=0.356, p=0.001) and physicians whose practice scope matched their training (OR=0.413, p=0.024) were less likely to have unsafe outcomes.

Conclusions: Results suggest there are important predictors of physician performance on a competence assessment that include personal characteristics, practice context, and reasons for referral. The results have implications for policies and programs designed to assess risk of poor physician performance and to improve practice through organizational design or remedial education.

Take-home messages: Risk factors for unsafe practice included solo practice, practicing outside of the scope of one's training, lack of board-certification, and increasing age. Physician performance appears to be the product of a complex interplay of physician-specific and external/contextual factors, and therefore should be evaluated in a broader environmental context.

2I/6
Poor performance on the MRCP(UK) examination predicts license limitations in subsequent medical practice

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Background: Doctors wanting to enter physician training in the UK must first pass the examination for the Membership of the Royal College of Physicians [MRCP(UK)]. MRCP(UK) consists of two written parts and a clinical part (PACES). Although there is an extensive literature on the psychometric quality of MRCP(UK), its predictive validity has hardly been researched. The current study examined whether doctors' MRCP(UK) performance predicted their subsequent UK license registration status.

Summary of work: The General Medical Council keeps a register of all doctors licensed to practise medicine in the UK, including doctors who have had a serious performance issue resulting in license limitation ("license issue"). Register datasets were obtained for a 50 month period (2008 to 2012). These were merged with 50,311 candidates' MRCP(UK) results, providing 33,359 matched records and identifying 330 doctors with a license issue. Logistic regression and comparison of means were used to analyse the data.

Summary of results: The mean score on each MRCP(UK) part was lower for those with license issues than those without licence issues (p<0.001). Logistic regression results indicated that lower PACES scores [odds

ratio=0.96 ± 0.04 CI], male gender [odds ratio= 0.29 ± 0.19 CI], and older age [odds ratio=1.06 ±0.03 CI] were independent predictors of experiencing license issues.

Conclusions: Our finding that doctors who performed more poorly on PACES were more likely to experience license issues supports the validity of MRCP(UK).

Take-home messages: High-stakes clinical examination results can be useful in predicting clinical performance in practice.

2I/7
Walking the Talk: faculty & educational systems development for improving assessment practices in residency education

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Background: In-training evaluation reports (ITERs) are the foundation of workplace assessment of residents. While there has been some adoption of "minimum standards" more than 70 University of Toronto residency program directors (PDs) design ITERs unique to their programs, creating confusion for users and difficulty in studying trends across programs. There is strong educational rationale for introducing best practices for ITER design.

Summary of work: Key steps included: literature review, guideline development, consultation with stakeholders; approval by relevant committees; formal PD coaching, structured ITER review/approval; guideline refinement; and tracking progress and outcomes.

Summary of results: PDs needed the most support with: decreasing the excessive number of ratings, linking goals to objectives; developing descriptors for ratings, and mapping of rotations and assessments. Guidelines applied to 'new' ITERs, but many PDs also revised existing ITERs consistent with the guidelines. In the first 6 months, 105 ITERs from 27 programs were reviewed. Length varied from 30 -97 ratings per ITER. After review, most ITERs had less than 20 ratings but more than the guideline target of 12.

Conclusions: All new ITERs are linked to rotation goals and objectives so that different Medical Expert competencies and one or two other intrinsic CanMEDS roles are emphasized, a result of curriculum mapping.

Take-home messages: ITERs are more explicitly aligned to goals and objectives and, although much shorter, are still longer than ideal. Consensus around guidelines was important but not sufficient to ensure change. Considerable 'just in time' coaching and support from PGME educational consultants was needed. Further efforts to shorten ITERs will be informed by statistical

analysis of updated ITERs after one year, and from faculty and resident feedback.

2J Short Communications: Professionalism 1

Location: Club E, PCC

2J/1
Making short film vignettes to teach medical ethics

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Background: Two minute film clips were commissioned which have been successfully used in OSCE stations to assess the ethical reasoning of year 2 medical students. Building on from this experience medical students are now working with Faculty to create short film vignettes to be used in small group teaching sessions for medical ethics.
Summary of work: Medical students become involved in this on-going project as part of a student selected module or library project. They identify a topic that could be usefully explored through the medium of film and match against ethics and law learning outcomes. Pre-production includes scriptwriting, creating the storyboard and organising actors. Clinicians check the veracity and accuracy of the scenario and dialogue. Students have taken the lead with filming and post production.
Summary of results: Seven films have been made for ethics and law small group sessions. Topics include confidentiality (doctor aware epileptic patient is continuing to drive), consent/refusal (15 year old girl refuses chemotherapy), professionalism (dealing with child abuse, racism in the workplace). Facilitators state they are an effective means of drawing out students' knowledge on complex issues and student feedback indicates they enjoy these teaching sessions.
Conclusions: Students enjoy involvement in creating innovative teaching materials and they have shown immense skill and dedication with this project. The use of film vignettes promotes student engagement and encourages discussion of complex ethical issues.
Take-home messages: The creation and use of short film vignettes has proved to be popular and effective in engaging students' learning of ethics and professionalism.

2J/2
Using structured critical event report to teach medical students professionalism

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Background: Teaching professionalism is very important in the clinical years of the medical curriculum. But unprofessional behaviors of the faculty will distress the medical students.
Summary of work: Critical event report is a method to guide students how to reflect and build up their own professional behavior and attitude. We used small group tutorial to guide the year 5 medical students (the first clinical year of our curriculum). The report was well-structured. It includes description of the event, writing down their feeling of conflict, and identifies the items relating to professionalism. Meanwhile, the students have to think about the feeling of the patients, their families and medical personnel.
Summary of results: We have gone through 40 critical event reports in the program. Students learned how to speak out their conflict feeling and shared the ideas of their peers and facilitators. They learned the boundary of law, ethics and professionalism.
Conclusions: Critical event report has been applied in training empathy. But the experience of applying it in teaching professionalism is limited. This pilot study provides experiences in the practice.
Take-home messages: Critical event report is a good module of teaching professionalism for medical students. Small group discussion in workplace is a good way to teach professionalism. We also prove that the medical students learn what we do, not what we say.

2J/3
Perceptions on Professionalism in a Highly Dense Multi-cultural Institution in Arabian Gulf, Qatar: Needs Assessment of faculty and Trainees

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Background: Hamad Medical Corporation (HMC), a highly dense multi-cultural Academic Health Center in Qatar, got its institutional accreditation by the Accreditation Council for Graduate Medical Education-International (ACGME-I). Since professionalism is one of the six core competencies required by all the programs, it was necessary to study the perceptions of the faculty and trainees to better integrate professionalism in curriculum development and assessment methods.

Summary of work: Faculty and trainees from four disciplines - Obstetrics and Gynecology (OB & GYN), Medicine, Surgery and Pediatrics - were invited to a brief orientation session which included presentation of a published definition of professionalism, and by the usage of clickers their perception was surveyed, in addition to completion of a reflection sheet to capture their comments. Each group met separately.

Summary of results: A total of 184 participants were surveyed (94 faculty and 90 trainees). One third of the faculty identified professionalism problems with their colleagues and another third with administration. One third of trainees had professionalism issues with faculty and a fifth with nurses. One third of the faculty mentioned responsibility as a common professionalism lapse, while it was an issue within the Medicine trainees. The OB & GYN and Pediatric trainees identified trustworthiness and compassion as a concerning issue respectively.

Conclusions: The data highlighted significant differences among disciplines and between faculty and trainees.

Take-home messages: When significant differences of perceptions exist about professionalism, special attention should be paid during curriculum development and design of assessment tools in a multi-cultural institution.

2J/4
Medical students' understandings of professionalism in response to ethical dilemmas

Rosie Belcher (UCL, Medical School, London, United Kingdom)

Background: Medical students frequently experience personal ethical dilemmas during their training. Their responses to these dilemmas are important, as they are likely to influence their responses after qualification. There has been increased in interest in teaching and learning professionalism recently, but conceptualizations of professionalism vary. Students differ in their development of personalized understandings of professionalism. I was interested to understand how medical students' understandings of professionalism influenced their perceptions of and responses to ethical dilemmas.

Summary of work: The research was conducted within the framework of Interpretative Phenomenological Analysis. Fourteen semi-structured interviews were conducted with clinical medical students from one medical school. The interviews were analyzed for themes.

Summary of results: Students drew on a several different understandings of professionalism in describing their ethical dilemmas and responses. Students were often aware of the differences in understanding of professionalism between themselves and other people involved in the dilemma. Ethical dilemmas were a powerful stimulus to discussion and reflection on what professionalism means for doctors. Some students' understandings of professionalism

disempowered them as they felt that lacked the knowledge or experience to judge a situation, or they perceived challenging a senior as unprofessional.

Conclusions: Students drew on a range of conceptualizations of professionalism, but these were sometimes conflicted, and inhibited some students from taking action.

Take-home messages: Ethical dilemmas stimulate discussion and reflection on professionalism in medical students. They could be used within the curriculum to help students develop a range of more empowering understandings of professionalism.

2J/5
The use of 'intervision' sessions for the discussion of personal and professional development experiences of clerks

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Background: Reflection on experiences is crucial to the enhancement of students' personal and professional development. 'Intervision' sessions are one means of facilitating this. During these sessions, students introduce work-related experiences and discuss these following a predefined peer review structure. We report which experiences are discussed and how these relate to personal and professional development.

Summary of work: During clerkships in the second Master's year at the University Medical Center Groningen, clerks participate in 20 longitudinal small group sessions. These sessions are chaired by clerks (by rotation) using the 'intervision structure'. A senior doctor (coach) facilitates the sessions. We asked 24 coaches to list the topics clerks reported during the last 5 sessions. The first author grouped the topics into categories; the other authors checked this coding in an iterative process.

Summary of results: The 106 reported topics were grouped into 3 dimensions of professionalism, with 10 underlying categories. Categories related to professionalism as an individual characteristic included doubts about own functioning and emotional incidents. Categories related to interpersonal interactions concerned problems between clerks, clerks and

supervisors and/or patients. Categories related to societal phenomena included ethical dilemmas, poor organization of care and/or clerkships.
Conclusions: Reported experiences during 'intervision' sessions match very well with the internationally recognized three perspectives on professionalism.
Take-home messages: A longitudinal course of 'intervision' sessions during clerkships facilitates the professional development of clerks.

2J/6
Altruism and medical professionalism in Japan through the perspective of Bushido

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Background: Medical professionalism is an important topic in medical education and one of its core principles is "altruism". This concept is mainly described in the literature from a western culture perspective, but when discussing internationally, we must consider how it is perceived in cultures other than those of the west. In Japan, we have imported and "translated" this term for use in medical education and practice however, it seems that this concept does not reach the heart of clinicians. That is probably because we have our own word having similar but slightly different concept. The question to be asked is how the concept of altruism of doctors is perceived in Japan.
Summary of work: There is a moral guideline handed down over centuries in Japan, which is "Bushido", having seven virtues. It is likened to chivalry and the noblesse oblige of the warrior class of Europe, but has a basis in Buddhism, Confucianism, and Shintoism. We describe Bushido's seven virtues and compared them with the elements of medical professionalism. We also did an e-survey for current Japanese doctors asking, "How much does the Bushido's virtue influence your clinical practice and why?" in both quantitative and qualitative ways.
Summary of results: The virtue of Benevolence (Jin) and Loyalty (Chugi) can be related to the western concept of altruism based on the qualitative results. The percentages of doctors answering "Strongly agree" or "Agree" for each the virtue were: 88% for Rectitude (Gi), 62.4% for Courage (Yu), 92.5% for Benevolence (Jin), 83.4% for Politeness (Rei), 70.7% for Honesty (Sei), 64.6% for Honor (Meiyo), and 46.6% for Loyalty (Chugi).
Take-home messages: Bushido can enrich the discussion of altruism and other elements of professionalism in an international sense.

2J/7
Overview of medical professionalism among undergraduate medical students in Khartoum

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Background: The key values of medical professionalism continue to underpin the daily life of medical practitioners, Identifying the full range of sources of conflict for the undergraduates and their awareness of professionalism will create opportunities to address problems, improve the efficacy and relevance of educational interventions, and promote a more effective working environment.
Summary of work: Analytic cross sectional study in which a self-administered, semi-structured questionnaire was distributed among undergraduate medical students, final analyses covered 504 students that were chosen randomly. Internal consistency of the questionnaire was determined was determined by employing Cronbach's alpha which was found to be 0.798.
Summary of results: The study showed that most of the students have fair knowledge, attitude and practice of professionalism, there's significant association between knowledge/attitude and knowledge/practice, also both knowledge and attitude were found to improve with increase in year of study. Regarding teaching and assessment 56% preferred to be taught medical professionalism through lectures, seminars, tutorials and clinical rounds, while in assessment 32% thought it should be formative assessment, while 26% thought it should be summative, over 60% of participants thought that the assessment should have an impact.
Conclusions: This study highlights that there's improvement in professionalism awareness corresponding to increasing exposure to medical education. It is important to gather such baseline information to guide the evaluation of the current professionalism curriculum along with its teaching and assessing methodologies. The findings suggest that teaching and assessment of professionalism should be more targeted and the students' sense of importance of professionalism is rather good.
Take-home messages: Extensive studies among all medical faculties are suggested to determine the factors affecting professionalism and best methods of teaching and assessment, debates and small working groups are suggested to explore and further develop professionalism teaching and assessment methodologies. Further research is required regarding the environment in which assessment should take place.

2K Short Communications: Accreditation and Change
Location: Club B, PCC

2K/1
A Meta-evaluation of 2nd Phase Medical College Accreditation in S. Korea

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Background: In 2000, an accreditation system for basic medical education was established in S. Korea. The second phase of the BME accreditation was conducted from 2006 to 2011. In order to determine the educational impact of the 2nd phase accreditation process, a meta-evaluation was conducted.
Summary of work: From fall 2011 to spring 2012, a meta-evaluation for the second phase of the BME accreditation was conducted to evaluate whether the accreditation contributed to improving the quality of medical education. The standards for meta-evaluation were categorized into five domains: purpose-relevance, implementation-feasibility, information-accuracy, report-faithfulness, and education-orientedness. Data used for meta-evaluation include the questionnaire from self-evaluation committee member; working-level staff members; faculty and external surveyors; in-depth interviews with personnel significantly knowledgeable about medical education evaluation; and surveys of focus groups consisting of five experts in medical education.
Summary of results: Evaluation findings turn out to be quite positive in all five domains. However, two points needed to be complemented. One is to conduct evaluation with more emphasis on the value of education-orientedness, and the other is to seek for ways to make more active use of the Korea Medical School Information System (KOMSIS).
Conclusions: Based on the results, it can be said that the medical college accreditation was implemented overall in a reasonable manner.
Take-home messages: Meta-evaluation for the accreditation of BME is a very useful procedure, not only to assess the process of the accreditation itself, but also to evaluate the outcome of the accreditation. The validation of the meta-evaluation standards requires external triangulation.

2K/2
Establishing the Japan Accreditation Council for Medical Education to extend quality assurance of medical schools in Japan

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Background: The Japan Accreditation Council for Medical Education (JACME) is organized as an accreditation body of medical schools in Japan.
Summary of work: In 2011, the structure and function of the accreditation body, JACME, was organized. In 2012, educational standards to be referred in the program evaluation and accreditation was formulated; and the Ministry of Education provided funding for good practice to undergo trials of program evaluation and accreditation in several medical schools.
Summary of results: Accreditation will be based on external evaluation after thorough self-evaluation practiced by each medical school. The accreditation process will include a review of self-evaluation, site visits, feedback, and conferment of certification. The interval of accreditation is yet to be determined. JACME should function to manage the accreditation process, organize an external evaluation team, and foster evaluators. JACME shall be a third party organization, independent from the medical school association and government, which will be recognized regionally and internationally. The educational standards will be in accordance with the Basic Medical Education Global Standards for Quality Improvement (2012) published by the World Federation for Medical Education with Japanese specifications. An international program evaluation based on the Global Standards was performed in 2012 in one medical school as a pilot evaluation. Regional external evaluations simulating accreditation are scheduled in 2013.
Conclusions: JACME will establish the medical education accreditation system in Japan which will conform to the global standards. In order to accomplish the first round of accreditation in all 80 medical schools in Japan by 2023, establishment of the system is urgently needed.
Take-home messages: The process, strengths, and hurdles to be overcome by JACME to implement an effective quality assurance system are described.

2K/3
Medical education in Taiwan – problems found during accreditation site visits

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Background: Taiwan Medical Accreditation Council (TMAC) is responsible for the accreditation of undergraduate medical programs in Taiwan. Areas of assessment include administration, curriculum, student, faculty, educational environment and resources. Medical schools introduce changes in their curricula following the recommendations of the site visit reports.
Summary of work: Site visit reports are open to the public on TMAC website. This study reviewed the most recent reports (2009-2011) of all twelve medical schools in Taiwan to identify the most common problems.
Summary of results: Major problems that occurred in at least four schools include (1) schools adopting the organ-systems model in pre-clinical years, without truly integrating the basic and clinical sciences. The new curricula were merely redistributing the traditional disciplinary-based sessions throughout the years of study. (2) Although Problem-Based Learning, Team-Based Learning and other innovative methods were introduced in some courses, didactic lectures remained the predominant teaching method and students remained passive learners. (3) Some inadequacies in quality and quantity of clinical teaching, especially in bedside teaching, primary care, hands-on experience and patient record documentation. (4) Schools expect teachers to excel in patient care, research and teaching, without providing them with sufficient support.
Conclusions: Better communication and collaboration between the administration and the teaching faculty, and leadership and faculty development programs can solve some problems. To implement any changes successfully, however, medical schools must support and reward teaching more.
Take-home messages: Medical schools can use the recommendations of accreditation reports to initiate reform process, but the key to success is to create an educational environment that promotes excellence in teaching and learning.

2K/4
Resident Involvement in Accreditation Program Reviews

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Background: In Canada, during a formal accreditation visit at a given university, all programs are scheduled for an in-depth review during the same week. The accreditation team is comprised of peer specialists and one resident representative per 20 programs being reviewed. The residents select which program reviews

they will participate in based on a resident survey and review of documentation. Residents visiting a few, but not all, programs creates a logistical challenge and may lead to the assumption that a program selected for a resident visit has pre-determined concerns or weaknesses.
Summary of work: As a pilot, a trainee representative was assigned to every program during one university on-site review. Resident eligibility criteria was established in conjunction with the resident organization and workshops offered to trainees interested in participating in this pilot.
Summary of results: Approximately 100 residents were trained in a period of five months, 24 of which participated in a university-wide accreditation program review, all 55 programs were reviewed by a trainee co-reviewer.
Conclusions: Trainees gained a broader knowledge of the accreditation process, a better understanding of accreditation standards and created buy-in in the overall accreditation experience.
Take-home messages: Involvement of trainees as co-reviewers contributes positively on the accreditation process however logistical and financial challenges exist which may prevent this experience from being duplicated in the future.

2K/5
New approaches to defining and measuring outcomes of learning: The AMA accelerating change in medical education initiative

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Background: The American Medical Association's "Accelerating Change in Medical Education" Initiative is a $10,000,000 grant program designed to alter medical education through bold, rigorously evaluated innovations that align student training with the evolving needs of patients, communities and the rapidly changing health care environment.
Summary of work: The RFP process began with a 5-page Letter of Intent submitted by each medical school. Letters were rigorously evaluated and a select group of schools were invited to submit full proposals. This paper explores the learning outcomes and measurement strategies defined by these medical schools.
Summary of results: One hundred and seventeen (83%) of the 141 US allopathic medical schools submitted Letters of Intent. Thirty-one were invited to submit full proposals. Ten schools were awarded grants. Schools are planning to use new technologies to measure competencies at the behavior level including simulation and virtual patient panels. A surprisingly large number of schools plan to focus on learning outcomes at the 'results' level such patient health status and satisfaction,

health care delivery quality indicators and system functioning. To measure these outcomes, they will use patient data in real and virtual EHRs, actual clinical system performance indicators (including cost and safety) and interprofessional team measures such as 360-degree evaluations. Most schools will focus on aligning UME with GME competencies and milestones to promote 'readiness for residency.'

Conclusions: US medical schools define and measure achievement of competency-based outcomes as the cornerstone for progression along the educational pathway. There is a trend toward defining outcomes at the 'behavioral' and at the 'results' levels (viz., Kirkpatrick).

Take-home messages: Medical educators are developing cutting edge technologies to measure learner behaviors and defining new 'results' outcomes of learning related to patient care and system functioning.

2K/6

How can Kotter's (1995) model of organisational change support faculty development in Eastern Europe? The Georgian Experience

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Background: A medical schools partnership, funded through TEMPUS, aimed to establish faculty development units In Eastern European countries to support modernisation of undergraduate medical curricula. The lead medical university in Georgia undertook initial needs analysis, highlighting a comparatively hierarchical management culture, despite democratic change in the post-Soviet era. Previous curricular reform attempts had floundered.

Summary of work: Adopting a model of organisational change management (Kotter's, 1995), the project team worked with Georgian faculty to foster conditions conducive to successful reform. This model and philosophical underpinnings were presented to senior management, regulators, faculty, administrators and students representatives. A Faculty Development strategy was jointly developed and communicated widely with stakeholders, encompassing the 'shared vision' described by Kotter (1995).

Summary of results: Organisational barriers to change included bureaucratic processes at Academic Council level which created delays in approving reforms and acceptance of the faculty development strategy. 'Quick wins' were achieved in the creation of a faculty development unit through refurbishment of existing space. The strategy has now been accepted and a programme of faculty development training incorporating new teaching methodologies has been implemented.

Conclusions: Sustainable faculty development must take account of organisational culture within wider political structures, aiming to empower those at the centre. Funded projects often gain advantage through short-term reform which is lost when the funding runs out. Initial investment in developing a shared vision and sensitivity to local context and culture allows 'quick wins' which brings collaborative advantage for further gains.

Take-home messages: Utilisation of the Kotter (1995) model provides a framework for stimulating organisational change which supports sustainable faculty development.

2L Short Communications: The Lecture
Location: Club C, PCC

2L/1
An innovative method to obtain immediate feedback from students during class with no cost

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Background: Audience response systems or clickers have been used in class for the past 15 years. Instructors may use clickers in class to: assess prior knowledge of students, detect misconceptions, assess students' grasp of a new concept or its application, perform instructor or course evaluations, and/or record attendance. Clickers have been shown to improve attendance and increase participation. The problem with clickers is that they are expensive and not available in all classes. Assessing prior knowledge and linking new information to previously learnt material, early detection of misconceptions and treating them, and assessing grasp and perceptions of students during class are good practices. This is made possible by an immediate feedback system that links the instructor to a large audience. This paper describes an innovative method which replaces clickers and is as effective with no cost.
Summary of work: Application of the use of Survey monkey software during class to obtain immediate feedback is described. It proved to be an efficient method which only requires one laptop for the instructor, students' mobile phones, and preferably wireless internet coverage. Perceptions of students of this method were measured by an online survey.
Summary of results: Acceptability of this method was high and it increased enjoyment, engagement, student pre-class preparation, academic self-awareness and motivation to attend and participate in class.
Conclusions: Use of Survey Monkey Questionnaire software can replace clickers with the same effectiveness at no cost.
Take-home messages: A new way of using technology in class is described. It allows for immediate feedback similar to clickers or audience response systems at no additional cost. It proved to be highly acceptable and increased enjoyment of class and motivation to attend classes.

2L/2
The fate of pre-lecture reading materials – in the brain or in the bin?

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Background: Pre-reading before didactic lectures has been shown to improve learning outcome. However, provision of pre-reading material does not equate with actual pre-reading being done. We evaluated the compliance of Internal Medicine residents and non-residents with pre-reading before a lecture.
Summary of work: A PDF journal article was e-mailed to all learners as pre-reading material two weeks before the scheduled lecture. Reminders were sent via e-mail and SMS one day before the lecture. To evaluate (1) if learners opened the document, a conspicuous picture was inserted on the front page and (2) if learners read through the document, two separate blank pages were inserted. Before the lecture started, attendees answered a questionnaire to identify the picture and number of blank pages. A subsequent follow-up survey was done to elicit the reasons for non-compliance with pre-reading.
Summary of results: We had 87 residents and 51 non-residents. Overall attendance rate was 60/138 (43.5%). Only 14/60 (23.3%) and 6/60 (10%) attendees opened and read the document respectively. There were no significant differences between residents and non-residents. Thus, there was very low compliance with pre-reading or even opening attached pre-reading material. The main reasons for not pre-reading were lack of time and forgetfulness.
Conclusions: Compliance with pre-reading in Internal Medicine residents and non-residents is low due to lack of time and forgetfulness. We need to address our learners' lack of time and also implement an effective reminder system.
Take-home messages: Most learners do not read assigned material prior to attending a scheduled lecture.

2L/3
Dwindling attendance at lectures: students' perception of its aetiology

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Robert Cohen (Hebrew University-Hadassah Medical School, Jerusalem, Israel)

Background: Decreased attendance has been observed in pre-clinical course lectures as the courses progress. This has been explained by what faculty perceived as changes in student attitudes, problems in intergenerational communication and work load pressures. We examined students' perception of the reasons for non-attendance.
Summary of work: Setting: Six-year programme with three year preclinical and clinical components, consisting of approximately 150-160 students per year. An end of year self-administered survey was completed by students in the three pre-clinical years using SurveyMonkey.
Summary of results: Overall, 425 responses were received. Individual learning preferences were varied: a minority (29%) preferred frontal lectures; a majority

used student prepared summaries (95.5%) and/or web based presentations (84%). Almost half (48.7%) of the students preferred learning independently. Options regarding reasons for decreasing attendance were: reliance on student summaries (82.4% agreed), uploaded materials (57.1% agreed), competition for time by different courses (60.2%), heavy workload (54.2%), non-compulsory attendance (47.4%), level of interest not maintained in frontal lectures (63.4%) and factors related to earning a living (76.7%). More than 140 free text responses are being analysed.

Conclusions: Student responses suggested that frontal lectures may be unnecessary for most students. They also revealed a worrying reliance on colleagues' summaries as being sufficient for their basic sciences education. Many Israeli medical students need to supplement their incomes by working during their studies. Curriculum planners and course directors would be well advised to take these factors into account.

Take-home messages: These findings should stimulate faculty at our medical school to adopt fresh approaches to engaging their students in the learning process.

2L/4
Do Variations in Classroom Delivery of Lectures Affect Student Video Viewing Patterns?

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Background: A growing body of research confirms that medical students in many countries view video recordings of lectures as an important component of their learning and preparation for exams.

Summary of work: This presentation examines the effect of in-classroom lecture presentation format on student use of all video recorded lectures. Students experienced three types of delivery of in-class lectures: professor presenting live in the classroom, live presentations from faculty at remote site, and pre-recorded lectures presented in the classroom. The research question is how do these variations in lecture delivery affect student use of videos?

Summary of results: The types of classroom delivery are associated with differences in class attendance as well as number video log-ons and when video lectures are viewed.

Conclusions: The mode of lecture delivery affects the student use of video recordings.

Take-home messages: As we move away from teaching via live classroom lectures and increased access to video lecture recordings, we need to know more about how

the diversity of current teaching modes affect student learning.

2L/5
Flipped or flopped? - Pre-class interactive, synchronous online formative activities in Pathology positively correlate with end of year performance

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George Kotsanas (Monash, Medicine, Melbourne, Australia)
Julianne Bayliss (Monash, Medicine, Melbourne, Australia)
Ben Canny (Monash, Medicine, Melbourne, Australia)

Background: Much effort is put into online pre-class activity but little is known about whether it correlates with end of year (EOY) summative performance. Year 3 Monash University medicine teaches ~500 students across multiple campuses in Australia (school-leaver (~280), graduate-entry (~90)) and Malaysia (school-leaver ~120). Pathology pre-class online activities have set objectives and use authentic clinical cases. Graded interactive synchronous prompts aimed at determining the level of understanding occur within each case with immediate individual formative feedback and model answers. Weekly class tutorials and post class online forums and self-paced online case-related multi-media, further support learning.

Summary of work: A significant positive linear correlation was found in both Australia (r2 = 0.14, n = 373, p< 0.0001) and Malaysia (r2 = 0.11, n = 123, p< 0.002) between online and EOY summative scores. Analysis of online scores across the three groups revealed a significantly lower mean in Malaysia (p<0.001), largely because there were significantly (p<0.0001) more unanswered questions among the Malaysian cohort. The differences in online scores were also seen in the EOY summative scores. Of interest, of those who failed the EOY summative score, irrespective of campus, 40% were found to have copied their answers from the model answers supplied to other students.

Summary of results: Online pre-class scores positively correlate with EOY summative performance, and other measures of engagement (attempts at questions, copying) also predict performance in summative assessment.

Conclusions: Pre-class interactive and graded online formative activities in Pathology positively correlate with end of year performance.

Take-home messages: Pre-class online formative activities positively correlate with end of year performance.

2M Short Communications: Student Characteristics

Location: Club D, PCC

2M/1

Relationship Between Motivational Orientations, Metacognitive Adaptations And Academic Successes Of Doctorate Students

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Background: Motivational orientations and metacognitive adaptations displayed in difficult situations are among two factors which affect the academic success of students. The aim of this study was to examine relationship between motivational orientations, metacognitive adaptations and academic successes of doctorate students attending to health sciences institute.
Summary of work: In this study conducted with 139 students, The Modified Archer's Health Professions Motivation Survey, The Positive Metacognitions and Positive Meta-Emotions Questionnaire, performance evaluation forms were used.
Summary of results: In the study where metacognitive adaptation levels of doctorate students are found high, their self confidence levels in extinguishing perseverative thoughts and emotions were found to be significantly different in comparison to their levels of goal orientations towards performance, academic alienation and use of superficial learning strategies; their self confidence levels in interpreting own emotions as cues, restraining from immediate reaction and mind setting for problem solving, establishing flexible and feasible hierarchy of goals were found to be significantly different in comparison to their levels of academic alienation, use of metacognitive learning strategies, internal control (p<0.05). It was observed that academic success of the students at course and thesis stages were found to be significantly different compared to their level of metacognitive learning strategies, self confidence levels for setting flexible, feasible hierarchy of goals (p<0.05).
Conclusions: It is determined that metacognitive learning strategies are related with academic success. In this study also determined that determination of flexible, feasible hierarchy of goals was standing out factor on academic success.

2M/2

Measuring medical students' intention of applying clinical training: The planned behavior model

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Background: Factors influencing medical students' intention to apply for internship and residency training program are important to medical educators in terms of its implications toward clinical training design and clinical education administration.
Summary of work: The Questionnaire was developed based on the theory of planned behavior (TPB). The conceptual framework included 4 pre-proposed factors. They are "intention of applying clinical training" (Intention), "perceived usefulness" (U), "social norm" (SN), and "education environmental support" (ES). The relationships between the factors are that U, SN and ES are inter-correlated, and they can predict intention. Two surveys were conducted in sequence with two different cohorts of students (160 and 231). Exploratory factor analysis (EFA) and structural equation modeling (SEM) were executed with identical items and factors using the two cohorts' data respectively.
Summary of results: The results of EFA revealed 4 factors with 71.28% total variance explained. The overall Cronbach's alpha was 0.87. The results of SEM indicated good model fit with the data of the second cohort (CMIN/d.f.=1.52, CFI=0.97, RMSEA=0.05). Regarding the predictive power, 31% of intention's total variance was explained by the model. Intention can be predicted by U (0.08, p>.05), SN (0.06, P>.05) and ES (0.51, p<.05). The correlation of U-SN, U-ES and SN-ES are 0.41, 0.36 and 0.18 respectively.
Conclusions: Medical students' intention of applying for clinical training program is dominantly predicted by the "education environmental support" rather than the "perceived usefulness" that is dominant factor in most researches applying TPB.
Take-home messages: Investments in clinical teachers, equipment related to training and training activities may attract the medical students to your program.

2M/3

Online study diary - a new designed tool for the quantification of learning habits

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Background: A recent study revealed that the subjective study time as sensed by students does greatly differ from objectively measured study hours. Hence, retrospectively assessed study habits by surveys do not seem to be a valid method to analyze study behavior. As it is important for curriculums to take the workload of students into account, a tool to assess study habits is needed.

Summary of work: Our group developed an online tool to assess study habits with regard to medical education. Medical students keep a 24 hour diary on study time, scientific research, part-time jobs, leisure time and sleep for 2 weeks. Focus of the diary lies on study activities for privacy reasons. Additionally, exam performance and learning styles can be assessed by online questionnaires.

Summary of results: The acceptance of the online diary was evaluated among medical students of the University of Munich. Users considered the tool to be time efficient (expenditure of time ~5 min/day), easy to use, and interesting in terms of self-reflection on objective study activity. However, when tested on a group of 440 students, only few participated in the study despite a lottery as incentive.

Conclusions: The newly-developed online diary is a valuable tool to assess study activities of medical students. It might not only lead to new insights into study behavior, but might also generate new ideas on how to improve medical curriculum. However, it is necessary to identify ways to encourage a broad majority of students to participate in diary studies.

Take-home messages: The online diary developed by our group is a valuable tool to assess study activities of medical students. Validation of curricular improvements or the establishment of e-learning tools could be possible applications.

2M/4
How r u going 2 teach me? Perspectives on teaching strategies from a Millennial learner

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Background: While appreciating each individual's particular learning style, there are certain characteristics unique to members of the generation termed the "Millennials". Certainly, their familiarity with technology has revolutionized conventional educational strategies; however, associated with the strengths of Generation Y are the challenges inherent in transmission of knowledge to a group of learners who have been raised in an era of information "overload". With the current shift in medical education from traditional pedagogies to a greater emphasis on the principles of adult learning, new medical curricula being developed must take into consideration the specific learning needs of this forthcoming cohort of students.

Summary of work: Current literature on medical education and Millennial learners was reviewed. Additionally, the author provides insights drawn from personal experiences as a member of this generational cohort, with perspectives of being both a student and a teaching facilitator.

Summary of results: Millennial students respond best to active learning strategies, engaging principles of the constructivist theory of social learning via group work and increased peer interactions. Likewise, a reformation in the educational environment to a more informal, relaxed setting further enhances the learning of this group of trainees.

Conclusions: Millennial students learn most effectively in informal educational environments, with emphasis on guided social interactions.

Take-home messages: In order to most effectively meet the educational needs of Millennial medical students, a combination of active learning methods and a modernization of current teaching strategies and attitudes is imperative.

2M/5
Learning styles and Achievement

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Background: Junior doctors' knowledge has been deemed unsatisfactory and unsafe for clinical practice by senior clinicians. This is supported by an increasing number of medico-legal litigations related to incompetency. Such cases are avoidable with improved understanding provided by altered training. Knowledge of medical graduates has been criticised, highlighting a potential problem with the way students are taught and emphasising the need to evaluate whether appropriate teaching methods are being used. A learning style is the way in which an individual prepares and learns. Using the experiential learning model (Conceptualize, Apply, Act and Reflect) it is possible to categorize students based on their educational needs.

Summary of work: This study set out to explore: the trends in learning styles and academic achievement in medical students' knowledge. Questionnaire packs containing the 80-item Honey & Mumford Learning Styles questionnaire were completed by 1st and 2nd year medical students at two institutions (University of Southampton and University of Durham) n=169.

Summary of results: The results revealed that the majority of students portrayed a reflector style (50.3%) followed by Theorist style (14.2%), Pragmatist style (11.2%) and Activist style (9.5%). Learning Style is not significantly correlated to examination success (Activists P=0.064, Reflectors P=.935, Theorists P=.184 and

Pragmatist P=.166) although trend reflect that students using an activist style are more successful.

Conclusions: Defining students' learning styles and relating this to academic achievement helps to understand the different types of learners within a curriculum.

Take-home messages: Learning styles are helpful in understanding students. Curricula should offer a multi-modal range of learning opportunities to suit different styles.

2M/6

The perception of candidates to medical school of the roles of the physician

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Background: Admission procedures throughout the world vary in requirements and many schools include a personal interview to try to identify what students want and how prepared they may be for medical school.

Summary of work: In order to understand why applicants select a medical career and how they perceive the role of the physicians, how this decision was influenced, and how they reflect on their personal characteristics to succeed in the medical career, we interviewed 164 candidates to medical school during the admission process.

Summary of results: 76% of our candidates elected medicine to help people, or as a service to the community. Others held a more academic perspective (understanding how the human body works, or interest for biomedical disciplines). Concerning those factors that influenced their election, the most important was the social prestige of the career and its possibility to impact on society, and the encouragement of the family. Regarding their own personality characteristics and skills, most of them recognized the importance of being organized, patient, caring, committed, determined or having good abilities such as curiosity, team-working skills or resilience.

Conclusions: Students entering medical school have a strong commitment to service, and interest for the biomedical sciences, and rely on their perceived personal characteristics to succeed in their studies

Take-home messages: Many medical schools still emphasize the academic component of its curriculum, but do not take advantage of this strong motivation to foster service attitude in their students.

2N Short Communications: Communication Skills
Location: Meeting Room 2.1, PCC

2N/1
Handoff Training for Pediatric Medical Students Improves Patient Care Skills

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Background: Failures in communication are the leading root cause of sentinel events. Accreditors worldwide have recognized this and mandated physician handoff education. While graduating medical students assume patient care responsibilities at the onset of their postgraduate training, there is little evidence indicating medical students are taught patient handoff skills. Therefore, a handoff curriculum was developed, implemented, and assessed using direct observation of students' handoffs.
Summary of work: In 2012, students completing a pediatric rotation in their final year at a North American medical school participated in a 2-hour handoff workshop. Over the month long rotation, students where observed three times performing handoffs and received feedback by trained faculty. An assessment instrument was constructed from a previously published "SIGNOUT" mnemonic was used to calculate a performance score. Using a 15-item checklist, the student performance was scored for each item as 0=not done, 1= needs improvement, or 2= done, for a maximum score of 30 (100%).
Summary of results: Fifteen students were observed performing 93 handoffs. Performance improved over time: mean score during first observation = 67.7% (SD 13.14), second observation = 94.8% (SD 5.04), third observation = 96.0% (SD4.67) (MANOVA, p<.0001). Evaluations of the workshop and feedback were overwhelmingly positive, 100% of students agreed they would recommend the workshop to a peer and that teaching was effective.
Conclusions: Student performance on handoffs improved with a curriculum incorporating direct observation and feedback.
Take-home messages: Education, direct observation and feedback of handoffs improve student skills on patient handoffs and can be incorporated into a senior level clinical rotation.

2N/2
Intrinsic clinical knowledge and skills bias and their potential impact on the assessment of communications skills in veterinary medicine

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Background: Further empirical work is needed in teaching and assessment of communication skills in veterinary education.
Summary of work: Web-based and small group training programs were developed. Two four-station OSCEs were employed to evaluate program efficacy (pre-post design). Twenty-three raters from clinical sciences, basic sciences, communications, and administrative backgrounds attended eight-hours of training on communication skills and the use of the 21-item Calgary-Cambridge Guide.
Summary of results: Semester five veterinary students were randomly assigned to groups: web-based (n = 32), small group (n = 33), and control (n = 30). Statistically significant differences on two post-intervention stations were observed (Canine Behaviour: $F[2, 93] = 5.113$, $p < .008$; Equine Lameness: $F[2, 93] = 8.004$, $p < .001$). Post-hoc analyses indicated the small group intervention outperformed the other groups ($p < .05$). Results indicated that students were equally distributed among groups and rater backgrounds (Pearson X2 range: .217 to .793, p = ns). Differences in scores between rater backgrounds were found in all stations (F range: 3.826 to 21.972, $p < .05$). NVivo analysis indicated clinical sciences raters frequently commented about student history taking and clinical knowledge deficiencies.
Conclusions: Small group training was the most effective learning intervention. Basic sciences raters had the highest mean scores; communications raters the lowest. Confounding clinical performance with communication skills might have influenced clinical sciences rater scoring.
Take-home messages: Raters may have intrinsic biases related to their professional training. Clinical expectations that might influence communication skills assessment should be taken into account in rater training.

2N/3
Fostering informed empathy to improve attitudes toward and advocacy for persons with disabilities

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Background: Having a disability can negatively affect provider-patient communication. Persons with disabilities report the need for better communication with their health care providers and argue that education regarding disabilities is lacking for health care professionals.
Summary of work: An educational module to enhance health care students' capacity for informed empathy was developed. Pre- and post-assessment measures included the Attitude Toward Disabled Persons scale (ATDP), the Attitudes Toward Patient Advocacy Microsocial scale (AMIA) and the Interpersonal Reactivity Index (IRI). A pilot study assessed the development of informed empathy through the qualitative analysis of the post-module question, "How has your understanding, awareness or perception of individuals with disabilities changed?"
Summary of results: Themes of the qualitative analysis were a) becoming familiar with the daily life of individuals with disabilities, b) changing notions of normalcy, c) seeing discrimination against individuals with disabilities as issues that impacted them, d) recognition that disability is not only an issue of the physical body. ATDP ($t(126) = -5.324$, $p = .000$) and AMIA ($t(123) = -5.499$, $p = .000$) scores increased significantly post-module. Correlations between the pre- or post-module ATDP or AMIA scores and the IRI scores were not significant.
Conclusions: A patient-centered curriculum that utilizes persons with disabilities as the educators is an effective teaching tool for improving attitudes toward and advocacy for individuals with disabilities through the development of informed empathy.
Take-home messages: Patient-centered education can foster the development of informed empathy. Patient-centered education is an effective teaching method. Informed empathy can be tailored towards specific groups. Attitudes toward and advocacy for individuals with disabilities can be enhanced through informed empathy.

2N/4
Enhancing medical students' skills in handling awkward communications

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Background: Communication skills are covered in the first and second years of the four-year medical program at the University of Notre Dame, Sydney, Australia, in a series of workshops. Each workshop comprises small groups of up to 15 students.
Summary of work: Many factors contribute towards difficult patient encounters (Breen and Greenberg, 2010). To address the area of awkwardness e.g. sexual history-taking, the following approaches were taken in one workshop in second year: (1) using stories about real patient encounters (Miley, 2009); (2) incremental steps of taking a sexual history with student peers, followed by one-on-one in class with the facilitator as patient, using a "goldfish bowl" technique (Miller & Benz, 2008).
Summary of results: Feedback in student reflections and evaluations emphasise how this approach engaged them, enhanced their learning and helped them overcome their individual anxieties. "I particularly like how the tutor demonstrates how task should be done and allows the student to practice directly with the tutor. The immediate feedback and opportunity to retry the skill afterwards is also very helpful in the learning process."
Conclusions: The horizontal integration of this workshop in second year with other sexuality related topics has had a synergistic result on the students' performance overall. To minimise facilitator effect, a program for sharing this approach with facilitators from Helsinki University has been trialled to explore the impact of cultural and language.
Take-home messages: Taking a sexual history provides an excellent example of a challenging area of communication skills which focuses medical students' awareness of the interplay between self, patient and environment factors which include professional/ethical standards (French 2007 BASHH guidelines).

2N/5
Predicting Communication Risks in the Emergency Department using Artificial Neural Networks

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Background: In healthcare, effective communication involves arriving at a shared understanding of a situation and in some instances a shared course of action. This requires a wide range of generic communication skills, from negotiation and listening, to goal setting and assertiveness, and being able to apply these generic skills in a variety of contexts and situations. This study explores if and how Artificial Neural Network can be applied to predict the risk of communication failures in emergency departments.
Summary of work: Data were collected by observing communication interactions in 840 nurses while they

carried out the routine activities in their Emergency Department. The tools used for the observation were a questionnaire to collect personal and descriptive data and their level of training and experience and a grid that applied the Situation-Background-Assessment-Recommendation (SBAR) technique to communication in the Emergency Department. The variables we identified were: terminology, listening, attention, and clarity.

Summary of results: A total of 840 observations were made on the nurses working in the Emergency Department, with a good distribution between males and females (M=40,6%; F=59,4%). Various factors that may likely influence the risk of failure were identified and then used as input variables for the ANN model. A model based on the Multilayer Perceptron Topology was developed and trained. Test data evaluation shows that the ANN model is able to correctly predict the performance of more than 75% of communication failures.

Conclusions: Its application can offer a valid tool to focus educational interventions in the communication area priority to people with a very high risk score.

2N/6

Who should teach medical students in communication skills: Experts in communication, psychiatrists, or someone else? Case study performed at the University of Zagreb School of Medicine

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Marijana Bras (University of Zagreb, School of Medicine, Department for Psychiatry, Zagreb, Croatia)
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Background: Teaching communication skills is an important part of medical school curricula. However, a question remains: who (professional profile) is responsible to teach medical students how to communicate? According to internationally presented experience, the answer is controversial. Two years ago, at the University of Zagreb School of Medicine, we introduced a longitudinal 6 years course in communication skills. The key question was who should be the teachers.

Summary of work: We present the original model of training teachers (regular staff from clinical, public health and primary health care fields) in communication skills and sharing experience in its implementation and evaluation. Forty younger teachers with various educational backgrounds are trained for teaching. Besides their personal and professional characteristics, the training programme, learning outcomes, materials and process evaluation results are presented.

Summary of results: Teaching communication skills is not exclusively the task of communication skills experts. The model developed and applied at the Zagreb School of Medicine showed that medical teachers could be educated to teach medical students in this field.

Take-home messages: Training medical teachers for teaching communication skills for medical students had an additional impact: They became (personally) competent in communication with patients, colleagues and others; a communication oriented atmosphere is generated.

2O Workshop: Using Situational Judgment Tests for Selection into Medical Education and Training
Location: Meeting Room 3.5, PCC

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Fiona Patterson (Work Psychology Group, United Kingdom)
Maire Kerrin (Work Psychology Group, United Kingdom)
Bill Burr (Joint Royal College of Physicians Training Board, London, United Kingdom)

Background: Situational Judgment Tests (SJTs) are becoming a popular method of selection for evaluating non-cognitive skills across many high stakes settings. SJTs have been used across a range of occupational groups ranging from the civil service through to the military. Meta-analytic validation studies have shown SJTs to have predictive validity over cognitive ability and personality tests. This workshop explores the research evidence underpinning the reliability and validity of SJTs in selection in medicine and how best to develop SJT items for selection purposes.
Intended outcomes: By the end of the session, participants will: (1) Understand the features important in developing a SJT (eg, designing items and response formats); (2) Recognise the advantages and limitations of using an SJT for selection into medical education and training; Understand the research evidence on the reliability and validity of SJTs for medical selection.
Structure of workshop: Presenters will share their experience of developing and evaluating SJTs for undergraduate and postgraduate medical selection. Participants will be invited to practice item development and the opportunity of reviewing SJT items. The session will consist of several short presentations on aspects of using the SJT, with a taster session on item writing with lively discussion and some interactive small group work.
Who should attend: All those interested in selection into medical training, undergraduate or postgraduate.
Level: Introductory

2P Workshop: Assessment of teachers' competence
Location: Meeting Room 4.1, PCC

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Charlotte Silén (Karolinska Institutet, Centre for Medical Education/ LIME, Stockholm, Sweden)
Maria Weurlander (Karolinska Institutet, Centre for Medical Education/ LIME, Stockholm, Sweden)

Background: To ensure high quality in health professions education, universities need to recruit teachers with high educational competence and set incitements for teachers' involvement in the development of teaching-learning. For this purpose, teaching portfolios have been introduced as part of the assessment for tenure track positions, and as a way to encourage teachers scholarly approach to teaching-learning. However, qualitative assessment of educational competence can be difficult.
We developed a framework for the assessment of qualitative aspects of educational competence, based on research of what facilitates learning and focus group interviews with teachers. The framework was tested and implemented to reward and recruit teachers with high competence.
Intended outcomes: Participants will be able to develop and apply criteria for assessment of educational competence and reflect upon how teachers' portfolios can provide information to qualitatively assess educational competence.
Structure of workshop: Short presentation of definitions and the criteria for assessing educational competence, and how the framework relates to learning theory and desired outcomes of teaching-learning in health professions education.
Activities: Participants work in smaller groups, in accordance with a two-step group-based learning model, to assess teachers' competence by applying the framework to extracts from authentic teacher portfolios. Possibilities, issues and questions will be shared and discussed.
Summary: lessons learned during the workshop, a shared discussion of difficulties and possibilities with a qualitative framework for assessing educational competence and distinguish excellence. A brief summary of lessons learned from implementing the framework.
Who should attend: Educational leaders, staff involved in assessing educational competence, educational developers.
Level: Intermediate

2Q Workshop: Getting into medical education - a workshop for medical students and newly qualified doctors
Location: Meeting Room 4.2, PCC

DS Furmedge (University College London Medical School, Academic Centre for Medical Education, 74 Huntley St, London WC1E 6AU, United Kingdom)
LJ Smith (University College London Medical School, Academic Centre for Medical Education, London, United Kingdom)
K Iwata (University College London Medical School, Academic Centre for Medical Education, London, United Kingdom)
P Hirons (University College London, Institute of Child Health, London, United Kingdom)

Background: Medical education is a rapidly expanding area which is becoming ever more popular with undergraduate students and junior doctors. There are a plethora of opportunities available both within medical schools and the postgraduate setting but these can be difficult to define and locate. It is important therefore that early career medical educators have guidance and information available to them. This workshop offers students and recently qualified doctors the opportunity to explore ways in which they can foster and develop their interest in medical education, make the most of opportunities available and develop their educational curriculum vitae.
Intended outcomes: By the end of this workshop, participants will be able to describe the scope of medical education as a discipline including the different domains, know where to seek out opportunities to be involved at the early stages of a career, how best to approach research, including optimising publication and presentation opportunities and the basis for developing an education and teaching portfolio.
Structure of workshop: The workshop will be an interactive session broadly structured into four themes 1) What does medical education involve 2) Getting involved in education early 3) Research, publication and presentation and 4) Standing out from the crowd – getting a teaching portfolio.
Who should attend: Medical students in all years of the undergraduate medical programme and junior doctors within two to three years of qualification with an interest in expanding their medical education interest and portfolio.
Level: Introductory

2R Workshop: Mastery Learning and Deliberate Practice in Medical Education
Location: Meeting Room 2.2, PCC

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Diane Wayne (Northwestern University Feinberg School of Medicine, Internal Medicine, Chicago, IL, United States)

Background: Mastery learning is a strict form of competency-based education in which educational outcomes are uniform but learning time varies. The principles of deliberate practice and mastery learning allow for the development of important clinical skills. This workshop will present an overview of mastery learning and deliberate practice. Participants will have the opportunity to review clinical skill examples, design a mastery learning program, and discuss results.
Intended outcomes: Participants will: (1) comprehend principles of mastery learning and deliberate practice; (2) describe advantages of mastery learning and deliberate practice over traditional educational strategies; and (3) design a mastery learning program for a sample clinical skill.
Structure of workshop:
1. Overview and introductions (5 minutes)
2. Review principles of mastery learning and deliberate practice (15 minutes)
3. Curriculum design exercise - design a mastery learning program for a sample clinical skill (30 minutes)
4. Individual and group reports about curriculum design exercise (30 minutes)
5. Wrap up and evaluations (10 minutes)
Who should attend: Health professions educators (e.g., nurses, physicians, physiotherapists) interested in designing and implementing educational programs based on the mastery learning model.
Level: Intermediate

2S Workshop: Teaching in challenging environments: Choosing strategies that work

Location: Meeting Room 3.1, PCC

Deepak Dath (McMaster University, Surgery, Juravinski Hospital, 711 Concession St., Hamilton L8V 1C3, Canada)
David Szalay (McMaster University, Surgery, Hamilton, Canada)
Edward Matsumoto (McMaster University, Surgery, Hamilton, Canada)
Jennifer Hoogenes (McMaster University, Surgery, Hamilton, Canada)
Farhan Bhanji (McGill University, Pediatrics, Montreal, Canada)
Jason Frank (University of Ottawa, Emergency Medicine, Ottawa, Canada)

Background: The operating room, busy clinic, emergency room, ICU and other venues are challenging places to teach residents and medical students. Most clinicians have no formal training in teaching and no explicit strategies to teach in the clinical context. Instead, they develop their own techniques to overcome the barriers to effective teaching. However, to be effective teachers, clinicians must identify factors that detract from teaching in these complex environments, overcome these barriers using a range of teaching strategies and strive to continuously improve their teaching styles.
Intended outcomes: Participants will share teaching strategies with their peers during discussion-based exercises and will practice teaching strategies in small groups. Participants will design and take home some solutions to their own teaching challenges.
Structure of workshop: In an introductory small group exercise, participants will identify the barriers to good teaching that exist in their own practices. A limited, interactive didactic session will link the participants' experiences with research and the literature. Further exercises will stimulate the identification of teaching strategies and a final exercise will give the participants the opportunity to design some teaching strategies to help manage their own teaching challenges
Who should attend: Intermediate and advanced clinical teachers who regularly teach undergraduate or postgraduate learners in busy or challenging environments will benefit from this session.
Level: Intermediate

2T Workshop: Tutor Facilitation Styles to Optimise Student Engagement in Small Group Learning: Right Style Right Time Right Group

Location: Meeting Room 3.2, PCC

Matthew Gwee (National University of Singapore, Medical Education Unit, 1E Kent Ridge Road, NUHS Tower Block, Level 11, Singapore 119228, Singapore)

Background: Traditionally, the predominant mode of delivering instruction is through lectures which focus primarily on the teacher and teaching. Active student engagement in small group learning (SGL) is now strongly advocated. Thus the teacher, as the facilitator, needs to have the requisite facilitation skills to optimise student engagement in SGL, i.e. how best to use the right tutor facilitation style (TFS), at the right time, for the right group of students in order "...to expedite the intellectual and interpersonal process for the group."
Intended outcomes: To classify the stages of group formation (dynamics); To distinguish between the outcomes of different TFS; To explain how the different stages of group formation; To influence the use of TFS; To reflect on how to use the right TFS, at the right time, for the right group of students to optimise student engagement in SGL.
Structure of workshop: The workshop is designed primarily on the basis of sharing and learning of experiences, including: short presentations (overviews) by workshop facilitators; hands-on activities in small learning groups; presentation / discussion sessions with participants; reflection on applying appropriate TFS in own environment.
Who should attend: All teachers who conduct small group tutorials who wish to acquire the necessary pedagogical skills to optimise student engagement in small group learning.
Level: Introductory

2U Workshop: Understanding Medical Professionalism: An International Challenge
Location: Meeting Room 3.3, PCC

_Vimmi Passi _(Warwick Medical School, University of Warwick, Coventry CV4 7AL, United Kingdom)
Fred Hafferty (The Mayo Clinic, Minnesota, United States)

Background: Medical professionalism forms the basis of the relationship between medicine and society and thus it is imperative that professionalism is incorporated effectively into the training of new physicians. However, medical professionalism is an extraordinary complex phenomenon which poses many challenges for medical educators worldwide. First, professionalism is a multifaceted concept and the lack of a consensus definition presents a challenge to curriculum design. Second, there are few evidence-based strategies for the teaching and assessment of professionalism. Third, individual, societal and political expectations are continually evolving, placing increasing demands on doctors. Four, there are many difficulties faced by faculty working within and across different socio-political systems. The aim of this workshop is to precipitate an open discussion about these challenges and to identify innovative methods of addressing them.
Intended outcomes: Participants will develop a deeper understanding of the challenges in developing medical professionalism from a cross-national perspective and identify methods of addressing them. This is important as educators worldwide need to collaborate and share ideas regarding the development of professionalism to ensure high standards of care for our patients.
Structure of workshop: Through a series of four exercises, participants will explore the following challenges in developing medical professionalism from a cross-national perspective: (1) the nature of the social contract between medicine and society and physicians and patients and how this social contract may differ cross-nationally; (2) existing definitions and their appropriateness to cross-national circumstances; (3) how a hidden curriculum of professionalism may differ based on cross-national differences; (4) how to develop innovative strategies to address these complex, international challenges.
Who should attend: All healthcare professionals involved in undergraduate and/or postgraduate medical education.
Level: Intermediate

2V Workshop: Assessing social accountability of medical schools
Location: Room A, Holiday Inn

Charles Boelen (Independent Consultant, Medical Education, Sciez-sur-Léman, France)
_Trevor Gibbs _(AMEE Consultant, United Kingdom)
Robert Woollard (Medical School, Family Medicine, Vancouver, Canada)

Background: Social accountability is a principle being given growing attention worldwide as it studies approaches by which medical schools can make the best use of their potential in education, research and service for the greatest impact on people's health. Defining evaluation norms and processes in social accountability is important as it may contribute greatly to enhancing the quality of work and influence the frameworks for evaluation and accreditation of medical schools.
Intended outcomes: 1 Awareness of challenges and opportunities for medical schools in applying principles of social accountability; 2 Review of existing norms in assessing the social accountability of medical schools; 3 Study of the CPU model (Conceptualization-Production-Usability) as an approach to assess the degree of social accountability of medical schools; 4Consideration of implications in revisiting existing evaluation / accreditation systems for medical schools; 5 Strengthening of a network of individuals interested to collaborate on proposed issues.
Structure of workshop: 1 Introduction to topics by presenters; 2 Questions and Answers session for clarifying topics; 3 Instructions for group work to share experiences and ideas; 4 Discussion of groups' findings; 5 Conclusion.
Who should attend: 1 Faculty from medical schools and other health professional schools with particular interest for orienting their institutions to better meet society's priority health needs and challenges; 2 People with interest or expertise in assessing the performance of institutions in the health sector.
Level: Intermediate

2W Workshop: Realist synthesis: the principles and methods
Location: Room B, Holiday Inn

Jan Illing (Durham University, School of Medicine, Pharmacy and Health, Centre for Medical Education Research, Burdon House, Durham DH1 1TA, United Kingdom)
Geoff Wong (Queen Mary, University of London, Centre for Primary Care and Public Health, London, United Kingdom)

Background: Realist synthesis is an interpretive theory driven systematic review method that is based on a realist philosophy of science. It attempts to understand how and why policies or programs cause their outcomes and how context influences outcomes. To make sense of any phenomenon we need to understand what causes it – realism uses the concept of 'mechanisms' to explain causation. So if I do X, Y happens BECAUSE of mechanism Z. In any intervention
Intended outcomes: By the end of this workshop we hope that attendees will have a basic knowledge of: i) The philosophical assumptions underpinning realist synthesis; ii) The four stages of a realist synthesis.
Structure of workshop: In this workshop we will explain the reasons why medical education research may benefit from adopting realist synthesis, using short presentations and questions and answers. This workshop will briefly: 1) Introduce and explain the philosophical assumptions underpinning realist synthesis; 2) Outline the realist synthesis process stage by stage and include worked examples drawn from published reviews. As realist synthesis is likely to be unfamiliar to many attendees, we have deliberately built in ample opportunity for discussion and questions.
Who should attend: This workshop is suitable for researchers interested in evidence synthesis using the realist approach. No preparation or prior experience required.
Level: Introductory

2X Workshop: Judgment and Error-Heuristics and the Pitfalls of Decision Making
Location: Room D, Holiday Inn

Marc Dorfman (Presence-Resurrection Medical Center, Emergency Medicine, Chicago, United States)
Robin Hemphill (Veterans Health Administration, National Center for Patient Safety, 2215 Fuller Rd, Ann Arbor 48105, United States)
Larry Gruppen (University of Michigan, Medical Education, Ann Arbor, United States)
Felix Ankel (Regions Hospital/Healthpartners Institute, Emergency Medicine, Saint Paul, United States)

Background: With education moving toward defined outcomes and evaluation tools that can discern the novice from the expert, understanding how decisions are made is a useful tool that can help delineate differences along the continuum. Whether a physician is a novice or expert, biases are inherent in our decisions making process. Unconsciously our mind uses shortcuts based on cues to speed up the process of problem solving. Understanding these biases will improve decision-making. Unfortunately, methods to limit impaired decisions may not be included as part of medical training. This workshop will present four cases, which highlight common biases and analyze how and why they occur.
Intended outcomes: Participants will:
Understand the different types of bias that may occur when making complex decisions both under pressure and with uncertain information.
Be able to select methods to improve decision making.
Structure of workshop: The workshop is built around case presentations in which a decision must be made quickly or with incomplete information. The faculty will present a case which will be interrupted for discussion. Cases will be presented as a case base oral board presentation. The cases will be structured to include a common bias encountered by physicians. Four of the most common decision bias will be reviewed. Faculty will lead the discussion and serve as a panel. Upon completion, of the interactive session,   participants will understand four common biases that affect decision-making.
Who should attend: Educators designing teaching, learning or assessment exercises.
Level: Beginner, intermediate

2Z Posters: Clinical Teaching 1
Location: South Hall, PCC

2Z/1
Current challenges in Clinical teaching: A situational analysis for evidence based change

Zerihun Gebremichael (Hawassa University, Pharmacology, College of Medicine and Health Sciences, Hawassa P.O.BOX 1560, Ethiopia)
Background: In the past few years the Medical student intake at Hawassa University has quadrupled while human and material resources have not increased proportionately. A newly established Health Professions Education Unit (HPEU) has been tasked with addressing the educational challenges this situation creates.
Summary of work: A survey using a five point likert scale (1 being lowest rating and 5 highest) collected students' opinions about current clinical teaching, learning and assessment practices. Four focus group discussions also gave instructors in each department opportunities to provide qualitative feedback on the same issues.
Summary of results: A total of 137 questionnaires were returned; 34 surgery, 32 internal medicine, 37 pediatrics and 34 gynecology. The mean values for the summated scales are less than 3 for almost all thematic areas. The lowest means for all four departments surveyed were for coordination between departments and assessment methods.
The major findings from focus group discussions are:
• Inadequate practical exposure for students
• Lack of innovative and objective assessment methods
• Inadequate Infrastructure to handle large number of students
• Loose Interdepartmental coordination
• Lack of appropriate orientation and advising for students
• Need for curriculum revision
Conclusions: The participatory, dual approach of this study enabled both students and faculty to provide valuable inputs that will inform and guide the future work of the HPEU in addressing the identified issues, and set the stage for implementing collaborative solutions.

2Z/2
Confidence in performing essential manual skills of Thai medical students completing externship training

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Srila Samphao (Prince of Songkla University, Surgery, Hat Yai, Songkhla, Thailand)
Chatchai Prechawai (Prince of Songkla University, Anaesthesiology, Hat Yai, Songkhla, Thailand)
Penny Singha (Prince of Songkla University, Opthalmology, Hat Yai, Songkhla, Thailand)
Kessara Kaewnoo (Prince of Songkla University, Medical Education Unit, Hat Yai, Songkhla, Thailand)

Background: The Thai Medical Council has decreed the essential manual skills that medical graduates should be competent in, and all students are instructed in these skills. However, an evaluation of the confidence levels of medical students in performing these essential manual skills and their evaluation of their learning experience has not been studied. We aimed to survey the confidence levels and experience of medical graduates completing externship training in performing essential procedures.
Summary of work: A questionnaire was developed to survey the confidence levels of the students completing externship training in the essential manual skills and their learning experience, using a 1-5 rating scale, with 4-5 deemed 'satisfactory'.
Summary of results: Ninety-nine medical graduates completed the questionnaire. Among the 17 essential procedures, the mean confidence levels varied from 3.35 to 4.57. Subgroup analysis of their ratings of their learning experiences showed that a satisfactory confidence level was achieved in all procedures if they had performed the procedure on more than 10 cases. More than half of the procedures required only 5 to 10 cases to reach a satisfactory result. Learning experiences involving less than 5 cases never reached the satisfactory confidence goal.
Conclusions: To achieve a satisfactory confidence level for medical externs in performing essential procedures, learning resources should be adequately provided so that each essential procedure is performed in a minimum of 5 to 10 cases.
Take-home messages: To learn to perform essential manual skills with confidence, at least 5 to 10 cases are required for medical students before graduation.

2Z/3
Discovering stigma through recovery teaching

Sarah E Gordon (University of Otago, Wellington, Dept of Psychological Medicine, Wellington, New Zealand)
Mark A. Huthwaite (University of Otago, Wellington, Dept of Psychological Medicine, Wellington, New Zealand)
Pete M. Ellis (University of Otago, Wellington, Psychological Medicine, PO Box 7343, Wellington South 6023, New Zealand)

Background: Most English-speaking countries endorse the Recovery Model as central to mental health service delivery. Recovery is supported by: minimising the impact of mental illness through supporting individuals to frame (make sense of the experience) and self-manage; and maximising well-being by supporting individuals to develop a positive identity and valued social roles and relationships. To achieve this, clinicians need to gain the necessary skills, attitudes and knowledge to support recovery.
Summary of work: During a quantitative review of the impact of two seminars on recovery, using the Recovery

Attitudes Questionnaire, qualitative observations were informally collated.

Summary of results: Initial openness to recovery concepts prior to a clinical rotation was generally later replaced by scepticism about their clinical application. Clinicians frequently contributed to this change. Students displayed considerable stigma about mental illness and found it hard to identify with patients. These attitudes were openly expressed to the tutor leading the recovery seminars, who openly identified as a mental health consumer, but not in formal assessments with other academic staff.

Conclusions: Students (and clinicians) may use 'professional distance' to avoid being overwhelmed by their own emotional reaction to their work, but this can reinforce stigmatizing attitudes. These are more prevalent in inpatient units. Many inpatient clinical placements may reinforce stigma about mental health consumers and undermine teaching about recovery.

Take-home messages: Explicitly explore stigmatizing attitudes – or they will remain invisible. Most mental health services, and recovery, happen in the community – so promote teaching there.

2Z/4
The McGill Illness Narrative Interview as a part of medical intern students' experience in Family Medicine

Daniela Freitas Bastos (Federal University of Rio de Janeiro (UFRJ), Internal Medicine, Rio de Janeiro, Brazil)
Caio Faria Maia (Federal University of Rio de Janeiro (UFRJ), Faculty of Medicine, Rio de Janeiro, Brazil)
Carolina Cardia Gazineu (Federal University of Rio de Janeiro (UFRJ), Faculty of Medicine, Rio de Janeiro, Brazil)
Alicia Navarro de Souza (Federal University of Rio de Janeiro (UFRJ) - Faculty of Medicine, Psychiatry and Forensic Medicine, Rua Viuva Lacerda 433 apt 202, Rio de Janeiro 22261-050, Brazil)

Background: Considering the tradition of biomedical model and training hospital care, illness experience comprehension by medical students needs to be enhanced. This is particularly valued in primary care, in which people's participation in health promotion and rehabilitation is strategic.

Summary of work: We chose McGill Illness Narrative Interview (MINI) to enable medical intern students to understand illness experience. Eleven students, previously trained, performed 29 MINI in primary care scenario. We conducted semistructured interviews with them before and after eight weeks of Family Medicine internship. Data was examined using thematic content analysis.

Summary of results: Students realized that they became more resourceful applying MINI. However, considering a significant number of patients with difficult compliance, the students believe that they do not adhere to treatment due to inability to handle the information provided about their disease.

Conclusions: Within current biomedical undergraduate training, after eight weeks listening to experiences of patients, they were not able to modify the ordinary representation of patients' incapacity to understand provided information about their disease, which is the reason they do not comply properly with medical treatment. Appreciation of illness and treatment experience associated with biomedical knowledge about disease have been proved useful, however they are not capable of transforming preconceptions acquired over many years in medical education hegemonic model.

Take-home messages: In primary care context, physician-patient relationship tends to reshape favoring illness experience narrated by the patient to the medical doctor. The biomedical model approach, prevalent in medical education, appears insufficient to recognize the complex and multidimensional illness nature.

2Z/5
Patient-centered Medicine – how to learn what we think we already know

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Eliana Amaral (Foundation for Advancement of International Medical Education and Research, Medical Education, Campinas, Brazil)

Background: Patient-centered medicine (PCM) has 4 dimensions: patient as a person; patient empowerment; therapeutic alliance building, and physician as a person. The aim of this study was to assess medical teachers' and students' own perception on patient-centered attitudes, contrasting with patients' perception.

Summary of work: In a cross-sectional study, a 20 items self-administered questionnaire (Likert scale) with four PCM domains was developed to evaluate medical teachers' (MT) and students' (MS) perceptions on their skills and attitudes. It had 2 versions, one for MT and MS (self-evaluation), and another for patients. Teachers, students, and patients were paired and data analysis compared percentage of totally agree/agree for each question and general average. All participants signed an informed-consent form before study admission.

Summary of results: The final sample had 45 teachers, 93 students and 93 patients. There was a little variation between teachers' and students' self-evaluation (totally agree/agree 95.5% versus 96.6%), and between patients' evaluation of teachers' and students' (totally agree/agree 88.8% versus 87.1%). The difference

between teachers' self-evaluation and patients' evaluation were 6.7 percentage points, and the difference for students was 9.5 percentage points. The largest difference was observed for the "physician as a person" domain, but the domain with a large number of statistical significant differences was "patient empowerment" (6/10 questions).

Conclusions: Despite the high scores of patients' evaluations, there were significant differences between self-evaluation and patients' evaluation, mainly in the "patient empowerment" domain, indicating that teachers' and students' attitudes may improve towards a more patient-centered care.

Take-home messages: The teacher cannot forget the role model he has.

2Z/6
The McGill Illness Narrative Interview experience of Family Medicine Internship students approaching patients presenting medically unexplained symptoms

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Background: Patients presenting medically unexplained symptoms (MUS) are frequent at primary care. "Disease-centered" medical education doesn't allow students to achieve enough competence on psychosocial approach demanded by them. MUS brings to clinical practice the complexity of illness experience beyond biomedical model.

Summary of work: The McGill Illness Narrative Interview (MINI) is a semistructured interview schedule to explore illness experience narratives. Students attending Family Medicine Internship were trained and used this guide to address patients with MUS in primary care. Seventeen interviews conducted by interns were recorded and examined using thematic analysis.

Summary of results: Interviews lasted on average 40 minutes. Most students negotiated the health problem with their interviewees who elaborated more easily narratives. The ones who didn't negotiate found difficulties to elicit stories. Another difficulty was the attempt to perform anamnesis, in a way abandoning MINI questions. Few students could use interviewees' MINI data for clinical management.

Conclusions: The doctor-patient communication is frequently considered a medical skill. The physician must be able to make himself understood and to extract information from patient's disease. The comprehension of illness experience could provide additional information to clinical reasoning. The data suggested that medical students using MINI better understood the psychosocial determinants of disease in these patients.

In some cases, it was possible to develop a therapeutic plan beyond medication.

Take-home messages: Patients with MUS represent about 30% of all primary care appointments. "Disease-centered" medical education brings not enough competence on approaching patients. The use of MINI by medical students provide better comprehension on patients illness experience; it may lead to a therapeutic plan beyond medication.

2Z/7
Direct observation study at out-patient setting improve medical students' clinical skill

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Ranittha Ratanarat (Faculty of Medicine Siriraj hospital, Medicine, Bangkok, Thailand)

Background: Direct observation study (DOS) is the teaching method where a mentor provides direct supervision and gives feedback to the learner in real-time manner. Previous studies showed that DOS improves patient care and trainees' clinical skill but is difficult to implement.

Summary of work: DOS was introduced for the whole class of 5th year medical students throughout the year at out-patient setting department of Medicine, Siriraj Hospital in 2012. DOS sessions were provided during the first few patients' encounters. Students' performance at out-patients clinics were rated for other 8 subsequence sessions. The average score were compared to 5th year students in 2011 (Conventional technique, CT).

Summary of results: Two hundred forty six students were supervised in DOS group. Mean score of students received DOS was significantly higher than CT group with score of 8.2 compared to 7.9, respectively (p <0.001). With respect to students' satisfaction, 75% of students rated DOS as a learning method with high to very high benefit.

Conclusions: DOS method improved students' performance with good satisfaction from medical students.

Take-home messages: Direct observation study is feasible to implement for a large group of medical students and leads to better clinical skills. It should be arranged in several essential clinical skills for medical students.

2Z/8
Cross-cultural validation of the Patient-Practitioner Orientation Scale (PPOS)

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Background: Patient-centered clinical practice is a holistic concept in which components interact and unite in a unique way in each patient doctor encounter. It has been considered crucial to high-quality health care. In this approach, assessing such attitudes has become increasingly important in the context of health care and medical education. The Patient-Practitioner Orientation Scale (PPOS) is an instrument originally designed to assess physicians', medical students' and patients' attitudes toward their roles in medical care. We aimed to translate, adapt and validate the PPOS for use in Brazil.
Summary of work: The PPOS was translated to Portuguese using a modified Delphi technique. The translated version of the scale was pre-tested in 37 participants. The final version was applied to 360 participants (medical students, residents and patients). Reliability (test-retest and internal consistency) and construct validity (explanatory and confirmatory factor analysis) were assessed.
Summary of results: Only two items did not reach pre-established criteria agreement in Delphi technique. In pre-testing, seven items were modified. Internal consistency and test-retest reliability were adequate. In explanatory factor analysis, one item did not achieve a loading factor, one item was considered factorially complex and two items were inconsistent with a priori factors. Confirmatory factor analysis provided an acceptable adjustment for the observed variables.
Conclusions: PPOS Brazilian version (B-PPOS) showed acceptable validity and adequate reliability.
Take-home messages: The use of the B-PPOS in national and cross-cultural studies may contribute to the evaluation and monitoring of the attitudes of doctors, medical students and patients toward their professional relationships in research and practice.

2Z/9
Factors affecting CRQ scores of fifth year medical students

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Background: During a 5-week pediatric rotation, the 5th year medical students (MS) had learning experiences at general out patient department (OPD), and in patient department (IPD) including neonatal and general wards. Constructed response question (CRQ) was scheduled at the end of rotation. The harder work in the IPD units may consume time for studying before the exam leading to lower CRQ scores in this group. Therefore, we conducted this study to evaluate whether sequence of learning places affecting CRQ scores or not.
Summary of work: Data including gender, grade point average (GPA), last service before the exam (OPD or IPD), and CRQ scores of each MS between 2007 and 2011 was collected. We compared the CRQ scores between OPD and IPD groups.
Summary of results: A total of 657 MS (289 M: 368 F) were divided into OPD (319) and IPD (338) groups. The mean CRQ scores of OPD and IPD groups were 267.85 and 263.34 (total of 400), respectively ($p<0.001$). Female MS did significantly better scores than male MS in both groups. The higher GPA was significantly associated with the greater scores in both groups. The MS within highest GPA (>3.5-4) range had no different mean scores between OPD and IPD groups (289.25 and 289.5, respectively).
Conclusions: Factors associated with greater CRQ scores were female, OPD service before the exam, and high GPA.
Take-home messages: Learning place before taking CRQ exam may affect the scores. MS should be advised to study consistently through the rotation.

2Z/10
A pilot study to assess whether patient submitted media data could help educate medical professionals and students about the varying presentations of different conditions within gynaecology

Charlotte Lake (Imperial College London, School of Medicine, London, United Kingdom)

Background: Smartphone photography and other media forms are increasingly being used by patients to demonstrate severity of conditions that may fluctuate or pass by the time of consultation. Students have reported that these images can improve understanding of the varying nature of different conditions. During an obstetrics and gynaecology rotation at Northwick Park Hospital, the use of data from smartphones and other devices for educational purposes was assessed.
Summary of work: Two sets of questionnaires were distributed either to patients (n=14) or medical students and doctors (n=18). The questionnaires contained 5 point Likert scales assessing whether smartphones and other media data devices have any role to play in medical education. Further questions addressed current use of smartphones in medical consultations.
Summary of results: 92.9% of patients either agreed or strongly agreed that smartphone photography and other media devices could help educate doctors and medical students about the varying natures of different

conditions. 66.7% of doctors or medical students either agreed or strongly agreed that this could be an educational aid. Furthermore, 85.7% of patients indicated that they would consent to their personal images being used for clinical or educational purposes.
Conclusions: The majority of patients, medical students and doctors felt that smartphone photography and other media devices could aid education of the varying presentations of conditions within gynaecology.
Take-home messages: Smartphone photography and other media devices have the potential to benefit education of medical professionals and students, even within the sensitive setting of gynaecology outpatients.

2Z/11
Encouraging medical students' self-directed learning during paediatric clerkship

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Thomas Balslev (Aarhus University, Paediatric department, Aarhus, Denmark)

Background: Self-directed learning is integral to medical professionalism – but how do we best encourage its development in medical students during their paediatric clerkship?
Summary of work: We introduced a compulsory assignment for all medical students. Each of them is required to find an authentic clinical problem and illustrate the result through literature studies and moreover present the results verbally for all the doctors within the department. Through focus group discussions we identified strengths and weakness with this initiative from specialists, residents and medical students' point of view.
Summary of results: All groups revealed that the medical students learned to search for concrete literature prompted by a clinical problem. They got more experience in communicating this new knowledge to and in front of future colleagues. Their self-efficacy beliefs increased when they experienced that other colleagues learned something from their presentation of the results. Some doctors mentioned that often a new side of the concrete problem arose, which encouraged them to do more research of the subject by themselves. The specialists were aware that they play a key role in ensuring a comfortable environment for the students when they give their presentation. The students felt comfortable with the assignment. A few mentioned that the assignment could be time-consuming.
Conclusions: Both students and doctors discovered that the students have developed their skills in self-directed learning and strengthen their self-efficacy. A supportive and positive educational environment is however a prerequisite for success.
Take-home messages: Medical students' self-directed learning can be encouraged through an obligatory, structured assignment. The students, residents and staff may benefit.

2Z/12
The acceptability of patients towards medical students in Korea

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Background: Bedside teaching is fundamental to medical student education. With increased perception of patients' rights and informed consent, it leads to difficulty in training students if patients decline their involvement and hesitation of students to encounter with patients. This study aimed to explore the acceptability of patients towards medical students during medical visit and to explore possible implications applicable to bedside teaching.
Summary of work: 33-questions, self-administered structured questionnaire of 483 who visited the hospital and ordinary person who are not patients were analyzed.
Summary of results: The respondents agreed with history taking(65.1%), observation(60.8%) and examination without physical exposure(56.5%) compared to physical examination with physical exposure. The respondents agreed with neck(68.5%) and abdomen(55.4%) compared to chest, breast, and rectum in physical examination items. They showed higher acceptance of students in the items of measurement of blood pressure(83.6%) and electrocardiogram(71.3%), wound dressing(71.7%) and taking consent(57.9%) compared to drawing of blood, wound repair, splinting, urethral catheterization and spinal tapping in procedure items. Majority of the respondents answered that prior consent is required in all steps of involvement for medical students. Experience and competence level of students and the presence of supervisor were the most important factor in the patients' agreement. In particular, female and younger age of patients appeared to affect the degree of acceptance.
Conclusions: The acceptability of patients towards medical students was not high especially in physical examination with physical exposure and invasive procedure. Prior consent for medical student participation could be requested.
Take-home messages: We should consider patients' rights and acceptability towards medical students for bedside teaching.

2Z/13
Improving Clerkship Teaching methods using Student Feedback

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J S Woo (Pusan National University School of Medicine, Medical Education Unit, Yangsan, Korea, Republic of (South Korea))
S Y Lee (Pusan National University School of Medicine, Medical Education Unit, Yangsan, Korea, Republic of (South Korea))
(Presenter: B S Kam, Pusan National University School of Medicine, Medical Education Unit, Pa Ma Ri, Mulkm Eb, Pusan National University School of Medicine, Yangsan 621, Korea, Republic of (South Korea))

Background: Alerting clerkship directors of learners' view from particular content of clerkship is necessary in order to improve teaching skills. For now no feedback system is yet available for this particular setting. Summary of work: Each student in a rotation team having time schedule for a clerkship, learns a lesson. To get to know how much a student learns of this particular content we compare knowledge of student, before and after each clerkship. A checklist of learned content which is to be taught by directors is provided to the system by clerkship directors. Accordingly that would be a memo list for students to be filled up. A web based system schedules the feedback for each student before they get to know their scores.
Summary of results: We gathered and evaluated contents for total 200 groups (each of 3 students) and 36 clerkships in two rotation times (2 years). Surprisingly by measuring statistics we saw improvement in clerkship teaching method. We had clerkship in 2009 measured 3.2/5, same clerkship measured at 2010 3.8/5 and year later at 2010 to 4.2/5.
Conclusions: By continuous monitoring of students from learning content we affect teaching skills of a particular clerkship. Alerting educational staff to statistical results also had a happy ending of their effort to enhance their teaching skills.
Take-home messages: By managing these realtime, valid, reliable and equitable statistics we improved teaching skills to a satisfactory point of clinical clerkship teachings.

2Z/14
A mastery learning – based nurse training program for clinical skills in asthma exacerbation management in primary care

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Background: In Singapore, many primary care (PC) nurses responsible for triaging patients with acute asthma exacerbations are not trained in chest auscultation and bronchodilator therapy initiation. Bronchodilator therapy may be delayed after triage as these nurses refer patients to physicians for evaluation and ordering of bronchodilator therapy. We designed a training programme to develop PC nurses' competencies in triaging patients with acute asthma exacerbations and in initiating bronchodilator therapy.
Summary of work: This mastery-learning based training programme consists theoretical (induction) and practical (clinical skills acquisition) phases. The learner must demonstrate mastery on unit assessments to progress to the next phase. Learners progress at different rates but all who successfully complete the summative assessment would have attained the same minimum level of competency. The instructional methods included workshops and workplace-based clinician mentoring.
Summary of results: All 8 nurses enrolled in the pilot programme successfully completed the Induction phase. Of these, 6 passed the summative assessment. Duration before programme completion ranged from 10-30 weeks (median:15weeks) Reasons for non-completion were job designation change and family commitments. The trained nurses reported being very confident of their ability in triaging and initiating bronchodilator therapy (median confidence rating 8.5-9.0, where 10.0=totally confident). Physicians were also highly confident of the nurses' ability (median ratings 7.0-8.0).
Conclusions: Mastery-learning is an effective method of training nurses to achieve competency in clinical skills. Rigorous assessments to ensure mastery by learners requires substantial resource investment. Variations in training duration and dropout rate should be considered during programme planning.
Take-home messages: Mastery-learning is an effective competence-based training method for clinical skills acquisition.

2Z/15
Flying High: Integrating hybrid simulation modalities in training programs for flight medics and other critical care transport specialists

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Background: Simulated Patient (SP) modalities are not commonplace in allied health curricula. Graduate medical education including medical, nurse practitioner and physician assistant levels utilize SP's to train and assess the psychoaffective domains including interviewing patients, performing physical exams and mitigating crisis, which allied health personnel lack in traditional curricula. The SP program at UMass Medical School is developing curricula to train prehospital emergency providers with SP OSCE based testing.

Summary of work: In 2013, UMass Memorial Lifeflight transitioned its flight crew configuration from physician/nurse to paramedic/nurse. This critical care medevac helicopter service hired 6 veteran 'street' paramedics with little to no critical care experience. To prepare the paramedics for work in critical care transport, UMASS Continuing Education and SP Program created a critical care transport specialist OSCE. A baseline OSCE focuses on communication and simple crisis mitigation. A summative OSCE after a 4-month didactic/practical orientation tests the paramedic's readiness to work in critical care flight transport. The OSCE included difficult patient handoffs, professionalism, and discord among team members.

Summary of results: Positive evaluations highlighted opportunities to learn and practice skills in this non-threatening positive environment; formal assessment through collected data from OSCE checklists, and structured debriefing through guided discussion.

Conclusions: Integration of hybrid simulation into flight paramedic training curricula will help learners acquire more confidence and competency in managing patient care and interprofessional behaviors in confined high anxiety situations.

Take-home messages: The goal is to provide a safe environment for paramedic, patient and flight crew through this experiential training program.

2Z/16
Needs and challenges in relation to the core content in emergency medicine curriculum for clerkships in South Korea

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Background: Many variations in the education of clinical clerkships in South Korea have been accepted without gathering opinions for competency-based core content due to Korean educational environment. There has been no attempt to set-up the competency-based core content on clinical practice for emergency clerkships and to recognize the gap of expectation on core content between clerkships and faculties.

Summary of work: This study was a prospective study utilizing a survey instrument and semi-structured focus group interviews of 4th-year students after finishing emergency medicine clinical practice and emergency faculties in seven university affiliated hospitals. The survey and interview composed of the questions in relation to knowledge, skills, attitude and barrier.

Summary of results: Clerkship directors (n=6) participated in focus group interview. 4th-year students (n=361) and emergency faculties (n=42) in seven major university affiliated hospital participated in survey. Faculties and students required the limited level of the core content and competence. The level of competency was limited to only practise on part-task trainer or to make a differential diagnosis. The students tend to concentrate on just many skills/procedures for practice period (2 weeks).

Conclusions: The level of competency-based core content is very limited on clinical practice. Although the learning objectives have been defined by Korean association of medical colleges, it is difficult to apply preexisting objectives to clinical practice considering Korean educational environment. Our study was the first attempt to provide the competency-based core content in practical clinical teaching environment in view of the students and faculties.

Take-home messages: We found the applicable competency-based core content and propose to integrate these into the clinical practice curriculum.

2Z/17
Client perception of veterinary student involvement in patient diagnosis and treatment

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Background: Reports from human medical education indicate student involvement in healthcare delivery has little to no effect on patient satisfaction. This provides little information about veterinary clients' perceptions of student involvement in their animal's medical care. It is the investigators' hypothesis that clients perceive student involvement as having a positive impact on the overall healthcare provided to their animal(s).

Summary of work: The focus of the investigation is clients of private veterinary practice, private industry, public, governmental, and institutional facilities where veterinary care is provided. Client perceptions of student involvement were ascertained by questionnaire. Data entry and analysis was subsequently completed using SPSS 17.0 software (SPSS).

Summary of results: At this time 38 completed questionnaires have been analyzed. Descriptive results have been determined. To the question "Would you have liked to have a student involved in in your pets care?" 77.8 % of respondents indicated, "Yes" and to the statement "Students reflect positively on the practice"

85.3% respondents indicated they "agreed" or "strongly agreed" with the statement.

Conclusions: The frequency results are encouraging and appear to indicate clients at these facilities like to have student involved in their animal's care and feel that students at a practice reflect positively on the practice. This appears to be similar to reports from the literature on human medical education.

Take-home messages: The authors' preliminary conclusions are that veterinary clients find student involvement in their pets care to be acceptable and perhaps enjoyable. They also feel that being involved with the training of veterinary students elevates the prestige of the practice indicating quality care.

2Z/18

Reflections on Advanced Cardiac Life Support (ACLS) Provider Course for the 6th Year Medical Students after One Year of Course Learning

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Background: The medical graduates lack competency in knowledge and skills of cardiopulmonary resuscitation (CPR). In Thailand, the 6th year medical students or externs are a part of CPR team, and may be the first person who takes care of sudden collapse patients. They should be trained and be able to perform CPR adequately, so 1.5-day ACLS provider course is designed for them.

Summary of work: A questionnaire utilizing a 5-point Likert scale assessed overall perception and attitudes toward the confidence and ability in management of CPR during externship after one year of course learning.

Summary of results: 158 questionnaires were distributed and 109 (68.9%) were returned. More than 95% of the graduates agreed that they had sufficient knowledge and skills, could apply and integrate knowledge and skills for CPR, and during medical emergency care. Most graduates rated that they lacked of skills and confidence in transcutaneous pacing and cardioversion performing, post cardiac arrest, acute stroke and acute coronary syndrome care, and tachy-bradycardia management. The course enhances their examination performance. The OSCE scores in ACLS topic were higher than those obtained traditional CPR course (88% vs 59.8%).

Conclusions: The new medical graduates had positive perception of their experiences in ACLS provider course.

Take-home messages: The ACLS provider course is useful to teach undergraduate medical students and help them deal with difficult scenarios.

2AA Posters: Stress and the Junior Doctor/Clinical Supervision
Location: Terrace 2, PCC

2AA/1
What do our interns identify as stress and how do they cope?

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Background: Modern day medicine has become a breeding ground for stressful doctors especially with the recent economic strains. The medical environment is very complex and as a result has different effects on different individuals. Several studies mainly in the NHS have identified stress and burnout in as high as a third of the doctors measured by the General Health Questionnaire and the Maslach Burnout Inventory.
Summary of work: Data was gathered at a stress management course delivered in three hospitals in the network namely James Connolly memorial hospital, Blanchardstown, Our Lady of Lourdes hospital, Drogheda and Waterford Regional Hospital.
Summary of results: Data collected from the three hospitals showed several issues to be a cause of stress to interns with unpaid overtime, excessive bleeps while on call and the increase volume of workload to be the main causes across the network. Other interesting and important issues raised were dealing with confrontations with colleagues, not getting bleep free teaching and increased team demands.
Conclusions: It can be concluded from our results that the common causes of stress are the same for all junior doctors in our cohort but that each doctor reacts to these stressors in different ways and this is related to their personality. In the future, we would like to evaluate the prevalence of stress and burnout in the interns both within our network and nationally and to determine the relationship between burnout and patient safety.
Take-home messages: Stress is a worldwide phenomenon with similar stressors for junior doctors. It is on the increased and coping strategies needs to be provided for junior doctors.

2AA/2
Can we help them cope? Stress in senior paediatric residents

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Background: Residency is stressful and can be associated with burnout, job dissatisfaction and low quality of life. Examinations are known to induce high amounts of stress in medical trainees. Thus a resident's final year of training has the potential to be especially stressful. We aimed to assess the wellbeing of paediatric residents in their final year of training following the implementation of a series of sessions aimed to reduce stress.
Summary of work: Residents participated in three 1.5-hour sessions over a four-month period, led by a social worker with expertise in wellness. Resident wellbeing was assessed using the Perceived Stress Scale (PSS), measuring subjective stress, and the Maslach Burnout Inventory (MBI), measuring emotional exhaustion, depersonalization and appraisal of personal achievement.
Summary of results: Scores on the PSS indicated high stress levels. Average PSS scores were 23 pre-exam and 24 post-exam. MBI scores indicated high-moderate emotional exhaustion prior to and following the licensing examination. Levels of depersonalization were low and residents continued to gain satisfaction from their jobs, indicated by moderate (pre-exam) or low (post-exam) scores in the area of personal accomplishment. Subjectively, residents did not find the organized wellness sessions helpful. They did identify the utility of discussing stress in a group setting and learning relaxation techniques.
Conclusions: This study confirms that residency is stressful and that licensing examinations likely add to the burden. Although paediatric residents scored high on the PSS and in emotional exhaustion, levels of depersonalization were low and they continued to gain a feeling of accomplishment from their work. The contribution of the organized wellness sessions to this finding is unclear.
Take-home messages: Senior paediatric residents experience significant stress in their final year of training. Wellness sessions may or may not ease this burden.

2AA/3
Comparison of quality of life of interns training in the terrorist area with that of interns training in other provinces in the lower southern region of Thailand

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Background: Since January 2004, terrorism in the lower southern region of Thailand has caused fear, stress and unpleasant feelings, especially for people living in 3 provinces: Pattani, Yala and Narathiwat. Our objective was to assess the quality of life (QOL) of interns who

worked in this area and to compare it with that of interns who worked in other provinces in the lower southern region.

Summary of work: During November to December 2009, 31 interns from the region experiencing terrorism and 87 participants from other regions completed the World Health Organization's 26-item quality-of-life assessment (WHOQOL-BREF).

Summary of results: Interns in the dangerous region had a higher income, more vacation time and a lower inpatient workload than interns in other regions (p < 0.01). Interns in the dangerous region found their workload to be more acceptable than did interns working in the other areas (48.4% v. 16.9%, p = 0.001). More interns in the region experiencing terrorism rated their overall QOL at the good or best level (35.5% v. 26.5%, p = 0.04). However, the WHOQOL-BREF assessment showed no significant difference between the 2 groups in overall, physical, emotional, social and environmental aspects of QOL.

Conclusions: Interns who worked in the dangerous region had some compensations that made them feel better than interns in other regions.

Take-home messages: Interns in the terrorist area had the same quality of life assessed by WHOQOL-BREF as those in other area.

2AA/4
What derails trainee doctors' careers? The importance and complexity of transitions

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Michael O'Connor (Severn Deanery, Trainee Support, Bristol, United Kingdom)

Background: It is estimated that, at any one time, 2–6% of doctors require additional pastoral support. A wide range of factors precipitate problems for trainee doctors, including environmental influences, behaviour, health and clinical competence. The aims of this study were to evaluate why and when trainees require support.

Summary of work: Data from 142 consecutive trainee doctors referred to the Severn Deanery for support were collected. Data were categorised according to five reasons for referral (home environment, work environment, behaviour, health and clinical competence) and grade of training.

Summary of results: Trainees in the Foundation years and those in the first year of Specialist Training required additional support more frequently. Whilst the majority of referrals in the first Foundation year were due to health problems, it was found that reasons for referral overlapped. Higher rates of referral coincided with the key transition periods in the trainee doctors' careers. Transition into Foundation or Specialist Training is often combined with a change in environment, an increase in

responsibilities and higher expectations of clinical competence.

Conclusions: Times of transition in trainee doctors' careers are associated with an increase in their requirement for support. The reason for this appears to be complex, with environmental influences, behaviour, health and clinical competence all potentially playing a role.

Take-home messages: A realisation of difficulties being experienced at times of transition in medical careers is important. Further investigation is required to determine whether transitions can be managed proactively to prevent and minimise stress and improve performance.

2AA/5
Problem residents and Inadequate Postgraduate Training: Individual, cultural and organizational matters

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Background: "Problem residents" or "trainees in difficulty" are residents who demonstrate a significant enough problem that requires intervention of someone of authority. International studies estimate that 5-7 % of all residents are problem residents. In Denmark, problem residents are termed "inadequate postgraduate training" because the phenomenon is considered both an individual and a cultural and organizational matter. Until now, the characteristic of residents experiencing "inadequate postgraduate training" in Denmark is unknown, and there is an urgent need for a systematic study of this phenomenon in a Danish context. The present study is the first sub-project of a larger inquiry into the phenomenon of "inadequate postgraduate training" in Denmark.

Summary of work: A survey study was designed and completed to explore how educational consultants perceive "inadequate postgraduate training" at their wards. The purpose was to gain knowledge about the prevalence, identification, causes, educational framework, and actions taken in relation to these residents. A questionnaire survey was mailed to 200 educational consultants in all specialties in one out of three educational regions in Denmark.

Summary of results: The collection of data and data processing is in progress and will be ready for presentation and discussion at the conference.

Conclusions: Conclusions will be presented at the conference.

Take-home messages: Understanding the phenomenon of problem resident and "inadequate postgraduate training" is complex and includes intertwining individual, cultural, and organizational matters. In this sub-project we have explored how educational consultants perceive problem residents and "inadequate postgraduate training" at their wards. To get a sufficient understanding of the phenomenon other measures are needed, e.g. interviews with residents.

2AA/6
Can we stop trainees failing the CSA?

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Background: The Clinical Skills Assessment (CSA) is a high stakes component of the MRCGP examination. It is the licensing assessment for entry into Family Medicine in the UK. There are marked differences in success in this examination between candidates from UK universities and those who qualified outside the UK. Why is it that female UK graduates have 93% success, whereas male non-UK graduates have 22%? Explaining this difference is essential if we are to develop effective educational interventions to increase the number of GP trainees who complete their training. We need to know which trainees are at greatest risk of poor scores. Do trainees' scores at selection tell us anything useful about their learning needs and subsequent performance at the CSA examination?

Summary of work: Two stages (written papers and OSCE) of selection into GP training produce numeric scores. We compared these scores with subsequent performance at the CSA examination.

Summary of results: Early analysis shows both selection sub-scores predict CSA outcome. Final data and interpretation will be reported at the conference.

Conclusions: We can predict trainees at highest risk of CSA failure by their performance at selection. More educational interventions can be targeted at those with lowest selection scores

Take-home messages: Primary prevention of CSA failure is the best strategy for both trainees and Deaneries. GP Training is short and the sooner we intervene, the more time learners have to make the necessary changes. A trainee's selection scores can inform the choice of interventions most likely to lead to CSA success.

2AA/7
Exploring the impact of residency on residents' personal relationships

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Background: Residents face numerous work-related challenges that lead to increased stress. Social networks can support residents, but little is known about the impact of residency on personal relationships. This study explores residents' experiences and perceptions of their relationships with friends, family, and significant others. Summary of work: Using a grounded theory approach, semi-structured interviews were conducted with a purposive sample of 13 residents at the University of Toronto. Emergent themes were identified through a process of constant comparative analysis.

Summary of results: Residents described residency structure (e.g. demanding call schedule) as the prime influence on their life's normalcy. This "new" norm was a mechanism through which relationship quality (e.g. personality changes) and social obligations (e.g. attending events/milestones) were mostly negatively impacted. However, the limited personal time available meant that residents increasingly valued their social interactions (i.e. "seizing the moment"). Residents explained that relationships were strengthened when others could empathize with their situation, and were weakened in the absence of empathy. Resultantly, residents' social circles were dominated by those who were also in the medical profession or in professions that had similarly demanding schedules.

Conclusions: Residency disrupts work-life balance in a manner that mostly negatively affects residents' ability to establish and maintain personal relationships. Social obligations often fail to be met, and residents generally believe that relationship quality suffers.

Take-home messages: It is important to consider the implications of residency on personal relationships as an overall strategy to improve health and wellness, which includes helping residents manage these potential consequences.

2AA/8
Sleep quality among first-year internal medicine residents

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Background: Regulation of maximum hours of work per week and duty period for in-training physicians has not been established in Thailand. We aim to describe the sleep hygiene, perception of reduced sleep hours, and daytime function of internal medicine residents during the first year of training.

Summary of work: Self-administered questionnaires were distributed to first-year internal medicine residents at the time of orientation before training for baseline data, then at 6 and 12 months after training.

Summary of results: Among 56 participants, the mean age was 26 ± 1 years, and 30 participants were female. Average sleep hours was significantly decreased from 7.0 hr at M0 to 6.0 hr at M6 and 6.1 hr at M12 (p < 0.001). The Epworth Sleepiness Scale (ESS) was significantly increased after being the trainee (5.7/24 at M0, 8.6 at M6, and 8.0 at M12 (p < 0.001). Perception of reduced sleep hours did not changed significantly after training (42.9/65 at M0, 43.5 at M6, and 43.0 at M12 (p > 0.46). Daytime function in term of fatigue, irritability, depressed mood, impaired memory, poor concentration, and decreased learning ability were significantly increased at M6 and remained stable at M12, except for the further increment of irritability and impaired memory (p < 0.05).

Conclusions: Internal medicine residency training greatly influences the sleep quality of physicians. Sleep loss may be one factor of the stressful environment, which leads to their self-reported impairment of daytime function.

Take-home messages: Preparedness for sleep loss and its consequences should be cautioned in those considering internal medicine training.

2AA/9

Time spent in educational activities increases residents' quality of life

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Background: Residency reforms to date have largely focused on work hour restrictions, not only to improve patient safety, but also to improve quality of life (QOL) of trainees. Many of these data have focused on the medical work culture of the United States; little is known about factors influencing resident QOL of non-US trainees.

Summary of work: We conducted a time-motion analysis of 64 residents at three large residency programs in Japan, recording data on work allocation, sleep, patient census, stress, and QOL metrics via SF-8

data. QOL data was compared against these practice characteristics.

Summary of results: SF-8 data did not differ by institution. No relationship was found between SF-8 parameters and hours of sleep, sleepiness, or patient census. Self-reported stress was associated with lower QOL scores each for lower general health (p=0.004), physical health, and increased pain and role limitations to due emotional health (p<0.04 for all). On adjusted analysis, a stepwise association was seen between increased time spent in educational activities and increased general health and vitality (p<0.05 for both).

Conclusions: For young trainee physicians in Japan, QOL does not appear to correlate with sleep or patient census. Rather, time spent in educational activities, perhaps as a better modifier of stress, may prove to be a more optimal way to promote resident QOL.

Take-home messages: These results suggest that, despite the many burdens of hospital duties, residency programs should continue to bolster active clinical teaching roles for faculty educators in teaching programs.

2AA/10

The Prevalence and Impact of Sleep Disturbances in Brazilian Residents and Their Relations with Quality of Life and Burnout

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Background: Residency is a period of hard work, challenges and intense emotional experiences. Adequate residency workload and its impact in medical practice are under debate. In Brazil, residency programs are limited to 60-hours work per week, yet the residents are allowed to work extra shifts in other institutions. Despite the concern about the excessive workload on residents' sleep, quality of life, and burnout, there are few studies performed on this subject in our country.

Summary of work: Pittsburgh Sleep Quality Index(PSQI), WHOqol-BREF, and Maslach Burnout Inventory(MBI) questionnaires were applied to 112 residents of Unicamp's University Hospital in 2012. A descriptive statistical analysis was performed and the correlations between the index evaluated in the questionnaires were studied.

Summary of results: We observed that 61% of the residents had sleep disorders, 52% had pathological daytime sleepiness, and 13% took sleeping medication. There was a negative and significant correlation among sleep disturbances and WHOqol-bref quality of life for physical (r= -0.61, p<0,001), psychological (r=-0.61, p<0,001), social (r=-0.46, p<0,001) and environmental

(r=-0.39, p<0,001) dimensions. There was a positive and significant correlation between sleep disturbance and the emotional exhaustion dimension of MBI (r= 0.355 and p<0.001).

Conclusions: Sleep disturbances among medical residents were highly prevalent and associated with burnout and a lower quality of life.

Take-home messages: Further studies are required to evaluate sleep disturbances during residency in Brazil and to deal with the excessive workload at this stage of medical training.

2AA/11
ACGME standards promote sleep and mitigate sleep deprivation-related fatigue

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Julie Griffis (Mayo Clinic Florida, Education, Jacksonville, United States)
Cheryll Albold (Mayo Clinic Florida, Education, Jacksonville, United States)

Background: Sleepiness and fatigue negatively impact physician performance, well-being and patient safety. In July 2011, the ACGME issued new standards for residents. We evaluated the effect of these standards on residents' sleep and fatigue.

Summary of work: We surveyed residents in mid January and June 2012 about the number of hours of sleep required to feel rested and hours they slept on weeknights and weekend. Responses were: less than 4, 4-6, 6-7.5, 7.5- 9, or > 9 hours. Fatigue questionnaire included: how often they feared fatigue negatively impacted their work performance; never, occasionally (1 to 2 times per week) or frequently (> 3 times per week). All surveys were sent and collected electronically and responses analyzed anonymously.

Summary of results: We have 115 residents and received total 78 responses (68%). Seventy of 78 (90%) felt they needed 6-9 hours of sleep to feel rested. Forty-six of 78 (59%) reported getting 6-9 hours of sleep during weeknights and 70 (90%) reported 6-9 hrs on weekends. None reported < 4 hours of sleep on weeknight or weekend. Fifty residents responded to fatigue questionnaire: Six (12%) reported Never, 36 (72%) occasionally, and 8(16%) frequently.

Conclusions: Our study shows that new standards allow time for adequate sleep and rest during residency. 59% residents reported 6-9 hours of sleep during weeknights and 90% reported that amount on weekend mitigating the risk of sleep deprivation and its associated adverse effects. The cause of fatigue in majority of residents is unclear and requires further study.

Take-home messages: ACGME new standards have positive impact on residents' well-being.

2AA/12
Demographic-targeted mentorship may be effective for Internal Medicine residents

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Background: Mentorship is a key component in the development of a medical career. Benefits to the mentee have been reported in career and research productivity, job satisfaction, career preparation, and psychosocial wellbeing. However, only 50-60% of young physicians have mentors. Males, proactive individuals, those who prioritise professional commitments, and trainees who have a chosen career path are more likely to have mentors. However, it is unclear if the provision or receipt of mentorship in Internal Medicine (IM) can be better informed by demographically targeted interventions.

Summary of work: This study aims to identify baseline characteristics of IM residents entering into a formal mentorship program in order to tailor effective mentorship. Academic achievements, professional achievements, and personal development and wellness were measured quantitatively through electronic surveys. 90 resident physicians were surveyed with a 61% response rate.

Summary of results: 73% of respondents were below age thirty. When compared to older resident physicians, those below thirty were less likely to: have a plan to prepare for the certifying exam (3.03 vs. 3.93; p=0.021), feel they have access to networks to accomplish their administration goals (3.05 vs. 3.60; p=0.04), be certain that they can accomplish their goals (3.80 vs. 4.40; p=0.005), and feel like they are on a definite career path which leads somewhere (3.55 vs. 4.13; p=0.038).

Conclusions: Our data identify a perceived need for specific mentorship based on residents' age. When analysed by level-of-training the result was not statistically significant, suggesting that age is independently an important factor.

Take-home messages: The literature has not previously identified younger age of a medical resident, specifically, as a need area for mentorship. Further study is warranted to determine whether it may be more effective to target mentorship towards specific age groups.

2AA/13
Benchmarking mentoring of specialising doctors

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Background: Mentoring specialising doctors is still often just signatures in papers. Mentoring sessions seldom take place and then outside working hours. Mentoring is

considered to be needed only when problems in competence arise.

Summary of work: Benchmarking: mentoring in Ob & Gyn Helsinki Finland and anaesthesia Turku Finland and psychiatry Vantaa Finland. By taking care of mentoring facilities you can lead change, bring tools for mentoring sessions and make a change in attitudes toward mentoring.

Summary of results: The definition of mentoring depends on specialty. Critical guidelines: (1) Guide to insightful responsibility (how to learn to make decisions). (2) Ask, do not assume. Presume nothing! In ane/psych the number of mentored is ten compared to two in Ob & Gyn. The hours in working schedule / 6months was 180-300 in ane/spych compared to one hour in Ob & Gyn. The number of mentors was two in ane/psych compared to Ob & Gyn where all the staff do mentoring. Neither in ane/psych nor in Ob & Gyn you can choose your mentor.

Conclusions: Mentoring needs still definition (What it is / is not) and appreciation (part of work load which is done during normal working hours). Contents of mentoring depends on specialty, but discussion on mentoring should be inter-specialties.

Take-home messages: A good system of mentoring has a positive effect on emotional working environment and is an advantage when recruiting new staff.

2AA/14
Enhanced supervision and support for training doctors at weekends: The role of the senior nurse

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Background: East Kent Hospitals University NHS Foundation Trust (EKHUFT) has been piloting a new medical rota under the sponsorship of Health Education England's Better Training Better Care Project. As part of the pilot, we have addressed the need for greater support and supervision for inexperienced F1 doctors working at weekends.

Summary of work: Our objective was to include a Senior Nurse, a Medical Registrar and a Healthcare Assistant in an enhanced, multi-professional weekend team, working exclusively on the medical wards, in order to improve supervision and learning opportunities for F1 doctors as well as improve patient care.

Summary of results: Data show that: (1) F1 doctors feel very supported by the Senior Nurses; they appreciate

their advice, their help in completing procedures, their willingness to give feedback. (2) F1 doctors feel that working as part of a multi-professional team means that their workload is easier, lighter, less stressful and more effective in providing timely review and management of patients. (3) Senior nurses feel the role is extremely valuable in terms of enhancing and supporting training doctor competencies and confidence. (4) There are early data trends in reducing length of stay, numbers of safe weekend discharges, patient mortality, numbers of SLEs undertaken by FP doctors.

Conclusions: The creation of a multi-professional weekend team has supported the training of doctors, provided a safer training environment and better patient care.

Take-home messages: The role of the Senior Nurse in the weekend team has proved crucial in building foundation doctor confidence, in the review of patients at the weekend and in identifying and facilitating safe discharge of patients.

2AA/15
Supervisors' experiences in supporting trainees' self-regulated learning

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Background: The importance of self-regulation is increasing in medical education, certainly in postgraduate training. In a prior study we found that GP-trainees use a short and a long loop of self-regulation. We were interested in what GP-supervisors see from GP-trainees self-regulation, how they support this, and in facilitators and barriers hereby.

Summary of work: We performed a phenomenological qualitative study by interviewing 20 GP-supervisors from The Netherlands. Transcripts were analyzed using iterative ongoing discussion by the research team.

Summary of results: Supervisors have explicit ideas about their role in supporting trainees' self-regulated learning. They show a variety of supporting activities like identifying learning goals, arranging learning activities and assessments. Also, supervisors draw trainees' attention to learning opportunities within the practice. Supervisors recognize both loops of self-regulation and have several ways in monitoring the quality of trainees' learning. They seem to create a holistic view on trainees professional abilities using more than the assessment tools from the training institute. Supervisors adapt their

activities to trainees' self-regulation. Also they take patient safety into account. Supervisors warrant for making appointments for discussing trainees' expectations on supervision, learning and progress. However, we also noticed differences between supervisors. Supervisors' training is facilitative for their role.

Conclusions: Supervisors have a variety of activities in supporting trainees' self-regulated learning and in monitoring trainees' professional activities. They adjust their activities to trainees' need. The workplace is recognized as an important and powerful context for self-regulated learning.

Take-home messages: Within the context of workplace based learning there are numerous possibilities to support, enrich and safeguard self-regulated learning.

2AA/16
Clinical supervision of psychiatric trainees in Hospital district of Helsinki and Uusimaa – a focus group study

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Background: Clinical supervision with high quality feedback is a powerful tool to change behaviours of doctors in specialist training. However, only one third of the specialists in Finland reported to have received good quality supervision during their specialization (Aine et al. 2011). The goal of this project is to set up a faculty development program for clinical supervisors in psychiatry in the Hospital District of Helsinki and Uusimaa in order to promote competency based clinical supervision while supervising trainees (comprises five hospital areas with population of 1.5 million inhabitants).

Summary of work: A qualitative study was carried out among 1) psychiatrists (supervisors) and 2) trainees in psychiatry to study attitudes, skills, needs and satisfaction related to clinical supervision and how clinical supervision is currently being delivered. The data gathered in focus group interviews (2-5 participants per group) was analyzed using content analysis.

Summary of results: Expected goals and content of supervision were unclear for both supervisors and trainees. Supervisors had no training for delivering clinical supervision, and supervision was usually understood to be the same as clinical consultation. Trainees reported to get very little feedback of their performance.

Conclusions: Clinical supervision, its goals and ways of delivery need to be more clearly defined. Clinical

supervisors need training in pedagogy and how to give feedback. As trainer training is practically non-existent in the Finnish psychiatry, our train the trainer program will be a pioneering step in developing specialist training in psychiatry in Finland.

Take-home messages: There is a real need to train the supervisors to ensure better learning outcomes of the trainees.

2AA/17
A Reading into the Profile of Trainees in Difficulty in Psychiatry

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Background: Supporting a trainee in difficulty can be extremely challenging. Hence the importance to study the types of difficulty trainees may experience. This article aims at identifying the types of difficulty in post graduate core trainees in psychiatry. The aim is to reflect on the findings in relation to the demographic of the cohort and training in psychiatry.

Summary of work: The register for the trainees in difficulty over three years (from 2008 to 2011) is reviewed. A specially designed format is used to collect data in relation to the characteristics of the cohort, the types of difficulty and the outcomes.

Summary of results: The majority of the trainees belong to ethnic minorities. Female trainees in difficulty outnumber male trainees. Twenty-two percent of the core trainees present with difficulty. The most common type of difficulty –more than two third- is related to educational challenges. In this group, more than half the trainees had difficulty to pass the exit exam, which is a clinical exam requiring the demonstration of observed skills and applied knowledge. Nearly one third failed to achieve the intended outcomes in psychotherapy training. Other types of problems involved sickness, lack of professionalism, probity issues and communication difficulties. Only half the trainees in difficulty progressed to high specialty training.

Conclusions: In psychiatry, communication skills and cultural aspects seem to play a major role in formative and summative training objectives. Attention to the needs of trainees belonging to different cultures and intended training outcomes for communication skills may help trainees in the foreseen difficulties. Early identification of difficulties beyond exam obstacles is needed.

Take-home message: Attention to communication skills, cultural difficulties; go beyond educational challenges (exams) to underlying difficulties; early identification of difficulties

2BB Posters: Preparation for Practice
Location: South Hall, PCC

2BB/1
Differences in learning needs and priorities between medical students and junior doctors: implications for transition from medical school to the work environment

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Background: Preparing medical students for their junior doctor roles is becoming integrated into curricula throughout the UK. Non-technical skills such as decision-making, initiative and time management have been proposed as important components of preparing for practice. We studied the learning needs and priorities of medical students and compared them to junior doctors to identify discrepancies and better inform curriculum development.
Summary of work: 36 medical students and junior doctors filled out a questionnaire describing the importance they placed on twelve different learning needs and if they felt adequately trained in them. These were rated on a 5-point Likert scale.
Summary of results: Junior doctors felt that making a good referral, writing prescriptions accurately and working effectively within a MDT were their most important priorities (mean differences – 1.53, 1.1 and 1.07 respectively on 5-point Likert scale, p<0.001). In contrast, medical students felt that making a correct diagnosis based on history and examination was their most important priority (p<0.05). However, only 71% of junior doctors and 6% of medical students felt adequately trained in making a good referral. 83% of medical students and 29% of junior doctors also reported poor training in effective time management despite both groups agreeing on its importance.
Conclusions: Medical students tended to prioritise acquisition of factual information and clinical skills over non-technical skills. Despite recognising the need for non-technical skills in their everyday practice, many junior doctors felt inadequately trained in performing them.
Take-home messages: Increasing awareness of non-technical skills amongst medical students may help transition to a junior doctor role and should be integrated into curricula.

2BB/2
Instigating and running a teaching course as a junior doctor

Tiffany Berrington (Salford Royal NHS Foundation Trust, ICU, Salford, United Kingdom)

Background: When starting work as an on call junior doctor many are faced with unfamiliar tasks and have anxieties surrounding patient assessments and management.
Summary of work: An interactive teaching course aimed at preparing final year medical students for working on call was instigated by a first year junior doctor at a large UK teaching hospital in the 2011/2012 academic year. The course received excellent feedback and was expanded in the 2012/2013 academic year. The nature of the teaching meant that it was best delivered by first year junior doctors. Therefore, in the 2012/2013 academic year, the original course designer, now a second year doctor, taught the course format to a group of first year doctors and supervised it's delivery to the final year medical students.
Summary of results: Following the teaching, medical students felt better prepared for starting work and thought that such teaching should be incorporated into the official medical school curriculum. The first year doctors gained valuable teaching experience, and a sense of satisfaction from knowing they had improved the knowledge and confidence of their juniors. The course designer benefitted also, in terms of both teaching and management skills.
Conclusions: Teaching does not need to be delivered by those in official teaching roles to be of use, if a gap in the curriculum is seen, those with the appropriate knowledge and skills should fill it.
Take-home messages: Setting up a teaching course as a junior doctor has many challenges but if well designed and executed it benefits all those involved and ultimately improves patient care.

2BB/3
A "Virtual Night Shift": Improving out of hours care through simulation

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Paul Baker (The Royal Bolton Hospital, Complex Care, Bolton, United Kingdom)

Background: The provision of medical cover at night is an area of growing concern for patient safety. Current undergraduate courses provide inadequate guidance on the practicalities of working "on call".
Summary of work: We developed and evaluated a 1 to 2 hour simulated session for senior medical students. The simulation takes a holistic approach to organizing tasks and solving problems during the course of a medical night-shift. This involves the integration of handover, prioritization, acute care, communication skills, and ethico-legal issues.
Summary of results: Preliminary feedback has been overwhelmingly positive. We will follow up the participants when they have commenced work to evaluate the lasting impact of this intervention.
Conclusions: The key innovation of our programme is the integration of diverse tasks into one simulation rather than just considering each element in isolation.

This illustrates to learners how performance in one area impacts many others; encouraging a holistic approach to problem solving. If the long-term follow up reflects the initial results, this will support our theory that simulation can improve clinical decision making and ultimately patient safety. Other educators could use this work as a basis for the development or their own simulated sessions.

Take-home messages: The transition from student to practitioner currently presents new doctors with unfamiliar challenges at times when supervision is lacking and they are physically and mentally impaired by tiredness. Simulation may improve the safety of this transition by allowing learners to encounter similar challenges for the first time in a supervised and supportive environment.

2BB/4
Deconstructing the general medical ward rounds through simulation -"SimRounds"–A novel initiative for medical students designed to enhance clinical transitions and interprofessional collaboration

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Background: General Medicine ward rounds are fundamental to patient care and physician training and comprise a complex set of exercises within interdisciplinary teams. Engaging medical students is important yet challenging, as their learning transitions from classroom to bedside. They may become passive observers, especially if patient care is prioritized over student teaching. With SimRounds, we sought to increase students' comfort with ward rounds, enabling active learning and appreciation for inter-professional collaboration

Summary of work: In the simulation centre, ward rounds including handover ("huddle") between nurses and doctors (10 minutes), pre-rounds with standardized patients (one hour), and rounds with consultants (one hour) were simulated. Participants included 13 year medical students, 15 nursing staff, 2 consultants and 10 standardised patients.

Summary of results: Semi-standardized focus groups with participating consultants, medical students, nurses and nursing students were conducted. Discussion points centered on how simulation was helpful, achieved objectives, evaluation methods and areas for improvement. All participants concluded that SimRounds was overwhelmingly successful. Medical students indicated the experience provided stress-free wards introduction, cases met learning needs, and they appreciated "patient" feedback. Nurses found SimRounds a safe environment which built confidence in

speaking up, enhanced communication, and improved their understanding of doctors' expectations

Conclusions: Simulated ward rounds has the potential to address many goals and objectives for different learners in healthcare. Although initially targeting medical students, all participants achieved new learning, especially pertaining to inter-professional collaboration.

2BB/5
A Medical School Capstone Course for Student and Curriculum Evaluation

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Background: Graduating medical students often feel unprepared for the challenges and increasing autonomy of internship.

Summary of work: We provide a 4-week capstone course for senior medical students to practice basic clinical, diagnostic, and procedural skills needed to succeed in residency. The course is taught after students have selected their specialty, and includes core lectures, specialty-specific curriculum, electives and simulation sessions. The core lecture series provides practical information about common medical issues such as electrolyte disorders, allergic reactions, and shock. Students are placed in specialty-specific tracks based on their career choice - Internal Medicine, Emergency Medicine, Surgery, Obstetrics/Gynecology, Anesthesiology, Pediatrics, Radiology or Psychiatry. Track-specific skills session prepare students for clinical practice, for example PreOperative Evaluation (Anesthesiology), Ultrasonographic diagnosis of shock (Emergency Medicine), Mock (cadaveric) OR (Surgery), or Contrast Reactions (Radiology). Students may choose electives such as evidence-based medicine workshops, public health policy discussions, and lab-based review of clinical anatomy. Simulation workshops include common procedures skills, care of critically-ill patients, and informed consent. Educational methods include lectures, interactive internet-based tutorials, small group discussion, workshops, and simulation sessions.

Summary of results: Student performance in this course has impacted the school's overall educational curriculum. A vascular access skills assessment triggered development of a vertically-integrated, benchmarked IV training curriculum. Inconsistent student performance in integrated critical care assessment has prompted changes in the school's cardiovascular curriculum.

Conclusions: The capstone course lets students integrate knowledge and skills within their future specialty, and enables the medical school to assess clinical competence and obtain feedback on curricular effectiveness.

2BB/6

Residents who received training in medical school perform better in an OSCE handoff

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Background: Physician duty hour regulations have increased patient handoffs, yet there is little evidence that medical schools provide formal instruction on transferring patient care to another provider. This study assessed incoming postgraduate first-year (PGY-1) trainees' previous instruction and self-assessed abilities about handoffs and evaluated their performance on a structured simulated patient handoff.
Summary of work: 173 incoming PGY-1 trainees at one large university-affiliated hospital completed a survey eliciting their prior training and self-assessed confidence in conducting handoffs. Their handoff performance on an Objective Structured Clinical Examination (OSCE) was also assessed. Independent t-tests compared OSCE performance of trainees who received handoff feedback during medical school; analysis of variance examined differences in performance based on prior handoff instruction and across levels of self-assessed abilities.
Summary of results: 35% of trainees reported receiving instruction and 51% reported receiving feedback about their handoff performance in medical school. Trainees who reported receiving instruction or feedback had significantly higher confidence in their abilities (P<0.0001). Trainees with higher self-assessed skills and perceived preparedness performed better on the OSCE. Trainees who received instruction during medical school had higher performance scores, including content (P=0.0028), clinical judgment (P=0.0046), total (P=0.0012), and global performance scores (P<0.001). Those who received feedback in medical school had higher content (P=0.0414), total (P=0.0406) and global performance scores (P=0.0349).
Conclusions: This study provides evidence that trainees receiving handoff instruction or feedback during medical school are more confident and perform better on standardized performance assessments.
Take-home messages: Given the patient safety implications, medical schools should incorporate a handoff curriculum prior to graduation.

2BB/7

Stand Clear – Allowing students to find their own way in resuscitation training

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Background: Recognising and subsequently managing an acutely unwell patient is a skill junior doctors are expected to be competent in by time of graduation in the UK. Despite this, acute care is an area in which new graduates feel under prepared. In order to acquire and develop this knowledge, undergraduate medical students need to learn these skills. They need to understand the importance of a structured approach, but perhaps more importantly they need the opportunity to put their learning into practice.
Summary of work: Third year medical students within the University of Edinburgh receive teaching on Initial Assessment and Recognition of the acutely unwell patient. Previously this was taught as a staff led demonstration, with students then guided through practice. Student participation was limited as the sessions became didactic in nature. Students now work through a Computer Assisted Learning package (CAL) prior to their session and proceed to work through four patient scenarios with minimal staff intervention. Following on from this, they are expected to form an initial management plan, discuss differential diagnoses and triage their patient according to their findings. Discussions are held at the end of the session and any additional learning points are addressed.
Summary of results: Results will be discussed during the conference.
Conclusions: Flipping the class room and moving towards a more student centred approach, allows students to develop a greater understanding of the importance of sick patient assessment.
Take-home messages: Preparing junior doctors to manage critically unwell patients requires novel approaches to teaching.

2BB/8

Intern Preparation Seminar Changes Behaviour of Final Year Medical Students

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Background: At commencement of their last 6 months of study, Australian medical students have applied for,

and been allocated their internship job positions. Most internship preparation occurs at the start of their Intern year, whilst sessions during their undergraduate study are infrequent and not aligned to the curricular goals.
Summary of work: A new seminar introduced to the Austin/Northern Clinical School was designed to give final year students a realistic expectation of Internship, and to direct their learning in their final semester. Students were contacted for anonymous feedback directly after the seminar, and at the start and completion of Internship. Responses were gathered on the influence & usefulness of the seminar, and whether it had an impact on their confidence as an Intern.
Summary of results: 81% of the first cohort & 98% of the second cohort reported that the seminar would change their behaviour for the rest of the semester. At the start of their Internship, 81% of the first cohort & 88% of the second cohort rated the overall usefulness of the seminar as excellent or above average.
Conclusions: After the seminar, students became more involved in their allocated units and were motivated to complete non-assessed tasks of relevance to their pending internship. During their work as Interns, they recalled this seminar being useful and reported that this seminar improved their confidence on commencing Internship.
Take-home messages: The Intern Preparation Seminar provides significant motivation for learning, results in behaviour change, and appears to result in better preparation for internship. Tying final year medical student learning events to their forthcoming Internship provides significant motivation for learning.

2BB/9
Enhancing readiness for postgraduate education: a baseline survey for a family medicine residency program

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Steve Slade (Association of Faculties of Medicine of Canada (AFMC), Ottawa, Canada)
Shelley Ross (University of Alberta, Family Medicine, Edmonton, Canada)
Ivy Oandasan (College of Family Physicians of Canada; University of Toronto, Family Medicine, Toronto, Canada)

Background: Understanding what learning experiences students have had prior to residency is important for competency based curriculum planners. To be successful, having a baseline understanding of the specialty will enable learners to attain expected outcomes.
Summary of work: In 2012, a pilot study for entry level family medicine residents was conducted gaining understanding of their attitudes about the discipline, their exposure to the discipline while in medical school and their intentions to practice domains of family medicine in future. The first of a 3 part longitudinal survey was administered to six family medicine departments across the country.
Summary of results: 69.8% response rate (317 learners). Respondents included graduates from every medical school in Canada. The residency programs included one Francophone, a distributed model including rural sites, a large city program and a couple mid-sized. 58% agreed/strongly agreed that they had extensive exposure to family medicine in medical school. 50% had no exposure/ limited exposure to palliative care, 10% had no exposure/minimal exposure to chronic disease management, and 24% had no exposure/limited exposure to office based procedures.
Conclusions: Ensuring better transitions from undergraduate education to post-graduate education has been identified as a key FMEC-PG Project recommendation. It is important for undergraduate and postgraduate education leaders to look towards what is being taught in medical school in order to discern ways to enhance readiness for postgraduate education. This requires all specialties to look at the exposure being provided to medical students in key content domains forging a dialog with medical schools about how to ensure key content is taught and indeed competencies have been attained.

2BB/10
Programmed for Success: Program Director's Perspectives on Optimal Medical Student Experiences

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Background: Undergraduate medical education is focused on providing the best possible educational experience to create successful and productive interns. However, little has been written about program directors perceptions of the early experiences, academic and non-academic, the perceived influence on the interns' performance in later years, and how this information could be used in curricular reform.
Summary of work: Program Directors from the University of Minnesota Medical School participated in focus groups modeled on a series of open-ended questions focused on eliciting a conversation around the program directors perspectives of optimal experiences for medical students.
Summary of results: We found that all of the program directors who participated defined the exceptional intern as one who demonstrated academic proficiency and as well as sophisticated habits of professionalism, teamwork, communications, and critical thinking consistently throughout their time as a first year resident. These qualities were highly valued, when

apparent from their medical school and previous educational experiences.

Conclusions: The themes from the focus groups have significant implications for curricular development, assessment, advising, and faculty development in both the medical student and intern environments. The implications are complex and long reaching.

Take-home messages: It is important to understand the hidden connections between early medical education experiences and success in intern years. The tacit areas are in greatest need of understanding and emphasis. With new accreditation standards and practices it is imperative that students become interns that are a value added and not a burden to the system.

2BB/11
Does mentoring increase confidence of medical students?

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Philip Evans (University of Glasgow, Medical Education, Glasgow, United Kingdom)
Margaret-Mary Gordon (Gartnavel General Hospital, Rheumatology, Glasgow, United Kingdom)

Background: The start of clinical teaching is a significant milestone for medical students. Pre-clinical structure is replaced by the less organised routine of ward rounds and bedside teaching. This transition period between pre-clinical and clinical training has been highlighted as one of the most stressful experiences faced by the undergraduate. Third year medical students at Glasgow University recently reported lacking in confidence during their first ward-based clinical attachment. A mentoring programme was suggested as a potential way to overcome this.

Summary of work: Third year medical students undertaking a fifteen week clinical attachment at a Glasgow teaching hospital were assigned a foundation doctor as their mentor. Mentors were given guidance as to the expected level of contact between themselves and their mentee. A questionnaire was issued to the students at the beginning and end of the fifteen week period, evaluating how confident they felt in relation to various aspects of their clinical attachment. The questionnaire used a ten point Likert scale for evaluation.

Summary of results: Results of the study upon its completion will be presented with conclusions.

Conclusions: Informal feedback during the study suggests that mentoring is a positive tool for third year medical students. However some barriers have been highlighted. Identifying a mentor is increasingly challenging as medical school class sizes increase and clinical rotations shorten. Results from the ongoing study will help to clarify whether mentoring is an effective tool in increasing levels of confidence amongst medical students.

Take-home messages: Use of mentoring to increase confidence amongst medical undergraduates should help them to achieve their full potential.

2BB/12
Fluid prescription and its teaching as a medical undergraduate: What medical students think

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Alexander Peter Maxwell (Belfast City Hospital, Regional Nephrology Unit, Belfast, United Kingdom)
Gerard Gormley (Queens University Belfast, Centre for Medical Education, Belfast, United Kingdom)

Background: It is well recognised that junior doctors find fluid prescription a difficult topic. The aim of this study was to gain a greater understanding of the experiences and challenges that medical students face regarding the learning of intravenous fluid prescribing.

Summary of work: This was a qualitative study using focus groups analysis. Final year medical students in academic year 2011-12 at Queens University Belfast were approached during their work shadowing placement and were invited to participate in 5 focus groups consisting of 6-8 students per group. Thematic analysis was carried out to establish emerging themes.

Summary of results: Six prominent themes emerged: 'Teaching experience: disruptive variation' where the teaching of intravenous fluids varied considerably; 'Insufficient curricular connections' where there was insufficient vertical and horizontal integration of the teaching between and within years; 'The driving test: theory-practice transformation' where there appeared to be a difference between what is taught in theory and what happens in practice; 'Theory-assessment gap' where a difference was noted between what is taught in theory and how it is assessed; 'Role modelling: which standard to aspire to?' where students regarded the doctors on the ward as being role models and had difficulty judging which standard to aspire to; and finally 'Perceived risk conflict' where students expressed a conflict between risks of fluid prescription highlighted in the media and teaching they had received.

Conclusions: This study has added to the growing body of evidence that fluid prescription is a difficult topic, and is the first study to look specifically at the method of fluid teaching and advantages and disadvantages of each approach. It has generated a number of recommendations to improve fluid prescription and its teaching in the future.

Take-home messages: Fluid prescription remains a difficult topic and continued efforts should be made to improve its teaching.

2BB/13
Preparing for Employment

Denise Bee (The University of Sheffield, Medical Education, The Medical School, Beech Hill Rd, Sheffield S10 2RX, United Kingdom)
Nigel Bax (The University of Sheffield, Medical Education, Sheffield, United Kingdom)

Background: Despite the fact that the final phases of medical school curriculae are usually about gaining actual clinical experience, commonly in hospitals, the move from student to F1 doctor remains a difficult transition. In Tomorrow's Doctors 2009-GMC, a special placement - the student assistantship (SA) - was advised to be used to help the student do this.
Summary of work: A six week SA was designed to take place after finals assessment but before graduation and during which undergraduates would act as an assistant to the F1 doctor whose job they would be taking over at the start of their employment. Preparedness questionnaires were distributed to the undergraduates before and after the SA. The self assessment included preparedness for clinical tasks, administrative tasks, building relationships, managing own welfare etc.
Summary of results: The students indicated that they felt better prepared for employment after the SA than before and this was borne out in the detail across all points in the questionnaire. In particular, there was a much greater improvement in preparedness for the administrative tasks involved in becoming an F1 doctor.
Conclusions: The student assistantship, provided the placement is matched to the student's first job, provides an excellent grounding for employment allowing the student to experience both the nature of working within the National Health Service and coming to terms with the detail of the post.
Take-home messages: A placement matched to the first F1 job is an excellent way to smooth the transition from undergraduate medical student to F1 doctor whilst still able to maintain appropriate supervision.

2BB/14
Australian medical graduates and blood-borne viruses: how do knowledge and experience of occupational exposures relate?

Olga Vujovic (Monash University, Department of Infectious Diseases, Central Clinical School, The Alfred, Commercial Road, Melbourne VIC 3004, Australia)
Nicole Koehler (Deakin University, Deakin Learning Futures, Melbourne, Australia)
Claire Dendle (Monash University, Southern Clinical School, Melbourne, Australia)
Christine McMenamin (Monash University, MBBS, Faculty of Medicine, Nursing and Health Sciences, Melbourne, Australia)

Background: Medical students have high rates of occupational exposures to blood/bodily fluids (e.g.needlestick injury) with potential transmission of blood-borne viruses (BBVs). Little is known about the relationship between knowledge, including general disease-related BBV knowledge and specific knowledge of post-exposure prophylaxis (PEP), and behaviours in the context of occupational exposures
Summary of work: Interns commencing at three Melbourne teaching hospitals were invited to complete an anonymous survey regarding knowledge of BBVs, including post-exposure prophylaxis, and rates of self-reported occupational exposures.
Summary of results: Seventy-nine interns participated. General knowledge regarding HIV and hepatitis B and C was accurate. However, awareness of PEP availability was variable, being highest for HIV (94% of interns) and falling to 58% for hepatitis B. Alarmingly, 37% of interns incorrectly thought that PEP is available for hepatitis C. Occupational exposures were common (40%), often not reported (39%), and frequently occurred (31%) in non-university associated settings.
Conclusions: Assessment of commencing interns' knowledge revealed a mismatch between general knowledge and knowledge of PEP. In addition, interns were likely to have sustained an occupational exposure which was often not reported.
Take-home messages: Hospitals should not assume that commencing interns have adequate knowledge of occupational exposure management. Deficits in knowledge may translate into poor practices following occupational exposures. Future education and research needs to focus on translation of knowledge into practice and modelling professional behaviours. Finally, these data provide support for the concept of a national curriculum in infection control for recent graduates in healthcare disciplines.

2CC Posters: Outcome-Based Education
Location: South Hall, PCC

2CC/1
Which practical medical skills will a doctor need in 2025?

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Background: The catalogue „Practical Skills" as part of the German Catalogue of Learning Objectives consists of 288 objectives. In a separate Delphi study we identified 10 trends like demographic change or advancing modern technology to likely influence health care in the future. Given those trends, what future relevance will current learning objectives have?
Summary of work: We invited 8000 MDs from all over Germany spanning all medical disciplines to rate the relevance of all 288 skills from the catalogue given the previously identified trends. Participants rated the relevance of 30 learning objectives in the year 2025 on a scale from 0 to 4 in a two-step Delphi process. In a second round we asked participants of the first round to re-rate those learning objectives with broad variations.
Summary of results: 738 doctors responded to the first round and rated 242 learning objectives as relevant or very relevant while 44 objectives were rated as rather not relevant or not relevant, two were rated indifferently. 103 objectives were rated with broad variation among raters, 73 of these as relevant, 28 as not relevant and two without clear distinction. Those were subjected to a second round in which 314 of the initial 738 doctors participated. They rated 62 objectives as rather relevant and 41 as rather not relevant.
Conclusions: The expert participants considered 230 of 288 learning objectives from the national skills catalogue as relevant for the future.
Take-home messages: Learning objectives should be constantly adapted to the future requirements to keep the curricula up to date.

2CC/2
Supporting Schools to Implement the Tuning Learning Outcomes through the MEDINE2 Thematic Network

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Background: Primary European medical qualifications must be recognised by other European countries by law. However variation in achieved competences risks patient safety, undermines confidence amongst graduates, makes it difficult to plan postgraduate medical education for doctors in training, and exposes the system of free movement to criticism by employers and the public. A Tuning (Medicine) Task Force within the EU funded MEDINE Thematic Network for Medical Education created a consensus statement on the learning outcomes for basic undergraduate medical education in Europe in 2007 to encourage the achievement of a common set of competences. The second Thematic Network for Medical Education (MEDINE2) permitted a further Tuning project to create tools and resources to support European schools in adopting the Tuning Learning Outcomes.
Summary of work: The international project group developed tools and processes to inform schools further about the Tuning Outcomes. They designed a template and demonstrated examples from several schools of how the learning outcomes are delivered. They developed a self-assessment questionnaire through an iterative trial and pilot to permit schools reflect on how closely their programme and processes match the 2007 consensus statement. And they wrote a short guide on creating and implementing an outcomes-based undergraduate medical programme.
Summary of results: Examples of these will be demonstrated.
Take-home messages: The Tuning project has taken another step towards harmonising the graduating learning outcomes for medicine across Europe. However further work is required to encourage all schools to engage with the learning outcomes and supporting materials to achieve the consensus agreed in 2007.

2CC/3
CanBetter: CanMEDS in the Netherlands, not just the core but also the petals of the flower

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Background: Due to national guidelines postgraduate medical specialist programmes will implement the CanMEDS model. At present, the role of the medical expert is prominent in the modernized residency programmes. However, programme directors struggle with implementing the other, intrinsic competencies in daily practice.
Summary of work: A national committee has taken the initiative to design a programme that helps residents to become an expert in the intrinsic roles. Our doctrine is that the success of such programme greatly depends on the concept that it should be mainly workplace-based with courses being supportive.
Summary of results: During an invitational meeting with programme directors and residents, subjects and clinical activities that depend on intrinsic competencies were collected. All suggestions could be categorized in four

themes: patient safety, health care for elderly people, efficiency of care and medical leadership. For each theme training modules will be developed. First, the inventory of existing modules or learning situations (best practices) will be extended. Second, after analyzing the missing parts new workplace based training modules will be designed and tested in a pilot setting.

Conclusions: The goal is to compose workplace-based modules for a set of four themes covering all intrinsic competencies. It is aimed to differentiate between modules needed for all residents and modules that will be part of an excellency track in one of the themes. Residents applying the excellency track may become our future leaders in good health care.

Take-home messages: Applying CanMEDS in medical specialist programmes requires help for programme directors and residents for the implementation of the intrinsic competencies in daily practice.

2CC/4
Development of a Novel CanMEDS Health Advocate Portfolio for Pediatric Residents

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Background: Learning and evaluating the role of Health Advocate has been described as challenging by learners and teachers. A portfolio is a potential tool to address this challenge.

Summary of work: Using focus groups and interviews we explored pediatric residents' and program directors' understanding and experiences of learning and teaching the Health Advocate role, as well as their thoughts on portfolio design, utility and feasibility. Transcripts from focus groups and interviews were independently analyzed by each investigator. Major themes and sub-themes were identified and then discussed to generate final themes by consensus. The findings were used to guide development of an electronic portfolio.

Summary of results: Residents and program directors could identify the key components of the Health Advocate CanMEDS role. Residents identified lack of adequate teaching and feedback around this role, and program directors expressed feelings of discomfort in evaluating it. Both groups had some experience with portfolios and there were varied opinions on the best design and format. Portfolios were seen by residents as most helpful when they received regular feedback and guidance about content. Based on these findings, we developed an online portfolio with which residents can reflect on experiences in which they recognize opportunities for advocacy, discuss their colleagues' experiences, and receive regular faculty mentorship and

feedback. Trialing and preliminary evaluation of the portfolio are underway.

Conclusions: There is a gap in pediatric residents' teaching, feedback and evaluation experience on the role of Health Advocate.

Take-home messages: A portfolio on health advocacy may improve residents' skills as advocates.

2CC/5
Training In Guideline Implementation: Using The CANMEDS Framework

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Background: Studies of guideline implementation have shown that skills beyond awareness of the guidelines is important to their clinical application. Educational strategies that address broader aspects of guideline implementation facilitate uptake. The CanMEDs initiative has identified the roles of a physician; application of this framework in training can broaden the understanding of guideline use

Summary of work: Community family physicians (FP) and vascular (VS) and imaging specialists (IS) were surveyed to identify the use of a specific guideline regarding screening for aortic aneurysm. A focused in-office practice audit was performed on a group of FP. Qualitative study theory was applied to analyze data and identify common themes. A literature search on strategies for guideline implementation was performed.

Summary of results: Study of practicing physicians revealed that even when knowledge of a guideline (expert) was present only 20-42% of FP, VS followed the guideline in practice. Understanding of the validity of the guideline and its application to practice (scholar) played a role in defining the practice and care gaps in 40%. Available resources and clinical demands (manager) impacted on this in 25% (VS, IS). Specific ethical issues, such as self-referral, societal responsibilities and individual patient's access and freedoms (professional) were noted in 40% (VS, IS). The attitudes of other care providers and how best to address this in practice (communicator, collaborator) also contributed to the care gap (FP, VS, IS).

Conclusions: Guideline implementation is a complex issue that requires more than a 'knowledge translation' educational model. Training in and preparation for guideline implementation benefits from a broad approach to develop an understanding of how specific CanMEDs roles can facilitate guideline uptake in practice.

Take-home messages: Guideline implementation requires additional skills than simply knowledge of the guidelines.

2CC/6
The value of an external assessment in the training for medical specialist

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Background: The role of medical expert is central in the CanMeds framework, but residents must also develop in generic competencies, such as communication and collaboration. Many recently graduated residents feel insufficiently equipped in areas of generic competencies. Therefore not only development but also assessment of these generic competencies needs more attention during residency. Efforts were made to evaluate these competencies in a way that is complementary to current practice.
Summary of work: An assessment for learning half way during the residency period was developed together with an external assessment agency. This external assessment focused on general competencies, like communication, management and professionalism. Twenty residents from different departments have been assessed. The experiences of residents and lead consultants on this external assessment have been evaluated.
Summary of results: Preliminary evaluation shows that this external assessment, together with the observations of competencies by lead consultants, has given insight into the different competencies, direction to the personal development planning of residents and a perspective on the resident's career in which qualities, ambition and reality are in proper balance.
Conclusions: By performing an external assessment, residents and lead consultants have access to a new instrument to make motivated choices for the second half of the training for medical specialist.
Take-home messages: An external assessment of generic competencies may have added value in development of these competencies during residency.

2CC/7
Introduction of medical students to the CanMEDS competency of communication through an experiential case-based learning project

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Background: The CanMEDS competencies are an internationally-recognized framework of essential roles needed for optimal health care outcomes.
Communication is one of the seven competencies.

Undergraduate medical education focuses primarily on the medical expert role.
Summary of work: An educational activity has been developed and implemented to expand medical students' awareness of the CanMEDS roles in their last year of undergraduate medical education in a large medical school in Canada. Students undertaking a three-week clinical rotation in an internal medicine subspecialty are asked to reflect on the rotation through the lens of one of the CanMEDS roles. To facilitate reflection, they are asked to recount a case-based experience in a two-page composition and to share the account orally with a group of their peers and an instructor.
Summary of results: For the CanMEDS role of communication, students identified both positive and negative examples of communication ranging over expressive and receptive, written and oral, direct and indirect domains. Actively looking at their day to day interactions through the prism of the CanMEDS framework allowed medical students to increase their awareness of various forms of communication in the medical field and stimulated them to assess their own communications skills through a process of self-assessment and narrative reflection.
Conclusions: Medical students' awareness and understanding of the CanMEDS role of communication can be increased by explicitly asking them to view clinical encounters through the CanMEDS framework and discuss these interactions with their peers.
Take-home messages: The CanMEDS role of communication can be successfully introduced into the undergraduate medical curriculum using an experiential case-based learning project.

2CC/8
See it, do it, teach it: Competency-based training for trainers

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Background: Supervising physicians make a significant contribution to the quality of doctors' training programmes. The majority of supervisors have not received competency-based training themselves and are inadequately equipped for providing competency-based training for doctors. The postgraduate training programme for elderly care physicians has developed a teaching programme for supervisors which is itself competency-based, so participants may learn about and experience skills development.
Summary of work: The training programme comprises an introductory course and four modules each covering a number of linked supervisors tasks (such as encouraging self-direction).
The training days work towards the "shows how" level in Miller's pyramid, using exercises, practical scenarios with an actor, and collegial observations with feedback.

Practical assignments are based on applying what has been learned to guiding trainee doctors in the workplace. Participants formulate learning objective and action plans and put together a portfolio. Supervisor assessment is via video recordings in practice as well as reflective reports.

Summary of results: Around 100 supervisors are currently participating on the course. Experiences of the course suggest it is both supportive and inspiring. Participants and teachers believe there has been a significant learning effect.

Conclusions: The experience of competency-based training enhances the intrinsic motivation of supervisors to provide competency-based guidance to doctors.

Take-home messages: The experience of competency-based training encourages competency-based training.

2CC/9
Development of an online self-administered questionnaire to self-assess learning outcomes of undergraduate medical education in paediatrics

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Antigone Siamopoulou (Ioannina University Medical School, Child Health Department, Ioannina, Greece)

Background: The transition to clinical-based learning is critical, especially in paediatrics; a child requires specific skills. Learning outcomes (LO) at the school level (levels I and II) are increasingly used as a tool for improving undergraduate medical training. We went ahead one step further, developing specific pediatric LOs (levels III and IV) and transforming them into an online self-administered questionnaire for student self-assessment. We present our whole experience.

Summary of work: All paediatric faculty worked collaboratively to specify the Tuning-Medicine level I and II LOs into paediatric level III and IV LOs, such as paediatric history taking, physical examination, differential diagnosis, child problem solving, initial management of common paediatric acute and chronic illnesses, family, community and society influence on child's health and disease. LOs were then transformed into the iCAN!-Paediatrics questionnaire, completed online by 22 sixth-year medical students at the beginning of their training.

Summary of results: Students completed 172 questions in about 22 minutes, in a pleasant and creative climate. Overall mean score was 55.3%, the best in "I can approach the child with anemia according to erythrocytic indices" (80%) and the worst in "I can explain the significance of Gowers' sign" (14.5%). At the end of training, students will complete it again and added value could be estimated.

Conclusions: iCAN!-Paediatrics self-assessment questionnaire can be implemented in medical schools to promote paediatric-specific LOs.

Take-home messages: Specific at a course-level LOs and tools should be prepared for informing both students and teachers on expected competences and for self-assessment at any time during student training.

2CC/10
Medical students' views about the roles of paediatricians: Implications for setting outcomes and curricula for undergraduate paediatric education

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Background: Outcome-based medical education has been widely introduced into and accepted by various institutions, but data on the views of medical students about the roles of physicians are very limited. We could better meet medical students' learning needs if we could identify their views on the roles of physicians in health care, and the discrepancies between these views and the desired outcome of the education.

Summary of work: We conducted a quantitative and qualitative questionnaire survey for 50 fifth-year medical students attending Nara Medical University, Japan. We asked them to describe, in as much detail as possible, the roles and attributes of paediatricians. These roles and attributes were then categorised into 5 groups, according to the outcomes set by the Japan Paediatric Society.

Summary of results: We obtained 284 comments regarding the roles and attributes of paediatricians. These comments were categorised into 14 themes and 5 outcomes: general practitioner for children (260 comments), health supporter of children and parents (14), scholar (11), coordinator (2), and advocator (0).

Conclusions: Medical students strongly feel that the paediatrician must be exceedingly competent in general practice with children and have considerable knowledge and skills. However, it was difficult for the students to imagine the other roles of paediatricians, such as health supporter, scholar, coordinator, and advocator. These discrepancies should be helpful in establishing a new outcome-based curriculum.

Take-home messages: Students' views on the roles of physicians are useful for establishing outcome-based curricula.

2CC/11

A checklist for practical skills competencies during clinical rotations at primary care improves medical students' knowledge of expected learning outcomes

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Background: Despite efforts to inform medical students about the expected learning outcomes (ELO) at their primary care rotations, student evaluations continuously highlighted the lack of knowledge of these learning goals. Based on the pedagogical concept of constructive alignment, we introduced a checklist related to the ELO for the practical skills competencies that should be acquired during the primary care rotation.
Summary of work: The checklist was introduced to the medical students at Uppsala University (Sweden) in the middle of the autumn term 2012. A clinical teaching evaluation instrument, introduced in spring 2011, was used to evaluate students' own knowledge of the ELO and students' perceptions of the clinical supervisors' knowledge of ELO (Likert-scale 1-6). No information about the checklist was provided directly to the clinical supervisors during the autumn term.
Summary of results: Before introducing the checklist, the mean [SD] score regarding students' knowledge of ELO for the three preceding semesters were 3.79 [1.37], 3.86 [1.34] and 3.83 [1.32] respectively (n=759). After the introduction of the checklist, the score increased to 4.19 [1.23] (n=254); p=0.002. Students did not perceive that the clinical supervisors' knowledge about the ELO had increased, 4.53 [1.42] (before) and 4.57 [1.41] (after); p=0.63.
Conclusions: The medical students' knowledge of ELO during the primary care rotation increased after the introduction of a checklist for practical skills competencies.
Take-home messages: A checklist appears to be effective to increase students' knowledge of ELO. The existence of a checklist needs to be explicitly communicated to the clinical supervisors.

2CC/12

Importance of Different Characteristics of a Surgeon as Defined by Non Surgeon Physicians and Patients

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Background: Knowing the importance of the qualities a surgeon should have is relevant for curriculum planning in both undergraduate medical education and residency training in Surgery. We therefore decided to evaluate the opinions of patients and non surgeon physicians, who often refer patients to surgeons, regarding the importance of different qualities of a surgeon.
Summary of work: A previously published questionnaire (Frezza EE, Wachtel MS. Am Surg 2007;73:481-83) containing 14 items related to different qualities a surgeon should have was applied to 35 non surgeon physicians and to 35 outpatients from a private practice. Answers were expressed in a five-point Likert scale ranging from "non important" to "extremely important".
Summary of results: Both physicians and patients agreed and attributed the highest degrees of importance to three surgeon qualities: efficiency, attention to the patient and reliability. Patients ascribed more importance than non surgeon physicians to the following surgeon characteristics: dependability (p=0.0008), confidence (p=0.0003), good appearance (p=0.0006), great knowledge (p=0.0001) and graduation from a fellowship (p=0.0001). Non surgeon physicians attributed less importance than patients to appearance of the facility the surgeon works.
Conclusions: The surgeon qualities of efficiency, attention to the patient and reliability were regarded as extremely important by both non surgeon physicians and patients, which should be taken into account when planning educational activities.
Take-home messages: Patients and non surgeon physicians agree in a number of qualities a surgeon should have, but the former tend to be more comprehensive when appraising these characteristics and regard humanistic qualities as more important.

2CC/13

Curriculum changes and the key issues of development of competences in metacognition

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Background: Preparing future healthcare professionals is one mission of Universities. These professionals should be reflective, critical and lifelong learners. In this way, Brazilian Universities have implemented student-centered curriculum in order to promote independent and problem solving learning. Metacognition is key issue to prepare critical and reflective professionals. This paper aimed at correlating the curriculum changes and the degree of development of competence in metacognition.

Summary of work: This study analyzed 46 Universities, of Brazil, supported by PROSAUDE. 118 undergraduate courses of health area answered a semi-structured questionnaire. Besides, we selected 6 Universities to conduct focus groups with teachers and students of nursing and medical undergraduate courses.

Summary of results: We observed three different stages of development of metacognition ccompetences: (1) institutions in beginning of changes, students showed no evidence of metacognitive strategies, (2) institutions in intense process of change, students showed evidence of metacognitive strategies and (3) institutions in the consolidation phase of changes students are totally aware of metacognitive competence. The development of metacognition depends on the curriculum, teacher and student, highlighting the importance of faculty commitment and application of formative assessment, towards sustainability of curriculum change.

Conclusions: The main issues observed in the development of metacognitive competence by the students depend on the teachers' role and the formative assessment.

Take-home messages: It is fundamental to implement an effective institutional development programme to value teaching and learning.

2CC/14

Using a Delphi technique to develop learning objectives for a national cardiotocography education program

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Background: With the aim to reduce the incidence of cerebral injury to newborns a Danish national cardiotocography (CTG) education program is under development. Using a Delphi technique we aimed to develop learning objectives for the CTG education program based on the opinions of experienced midwives and obstetricians from 21 maternity wards in Denmark.

Summary of work: The research group stated six topics within CTG, based on national and international guidelines. In the first Delphi round the participants were asked to write 1-5 learning objectives within each of the topics. The responses were by directed content analysis and Bloom´s taxonomy reduced, rewritten, and redistributed in a second and third round, in which the participants were asked to rank each objective on a 5-point scale according to relevance.

Summary of results: Of the 42 included experts, 31 submitted 537 answers in the first round. These answers were reduced to 41 learning objectives. 27 experts ranked the learning objectives (means: 2.0-5.0) in the second round. The third round is ongoing.

Conclusions: In the attempt to achieve content validity of a nation based CTG education program expert opinions on learning objectives were collected and analysed using a Delphi technique. A prioritized list of the CTG learning objectives will be developed, which will constitute the content of the program, and clarify which topics to emphasize.

Take-home messages: A Delphi technique can be used to develop learning objectives for a curriculum and to provide information on the relevance of each objective.

2DD Posters: Assessment: General and Written

Location: South Hall, PCC

2DD/1

Correlating students' academic performance in core subjects with their professors' individual assessments

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Background: Studying academic performance during the first two years of medical school could be considered significant in order to establish adequate regimes of study in the following years in order to have better prepared medical graduates.
Summary of work: Based on this pretext we decided to invest in researching the correlation between perceived attitudes by teaching staff on an individual student, and their academic performance. We conducted a global review of all students within the second year of medical training in our faculty, 86 students, over a one-month period, where we had their professors complete an assessment questionnaire on each individual student, a survey based on the Likert scale and designed for this effect. A total of 26 teachers were asked for their input.
Summary of results: The attitudes shown by the students within the classroom setting were correlated with their academic performance at the end of the core subjects of their medical training, to a high degree (Pearson 0.82).
Conclusions: Results show that students' attitudes are determinant in their academic performance, and those members of faculty are able to detect these characteristics with precision.
Take-home messages: Early assessment tests are valuable in order to reinforce study skills and for positive revision habits to be established in students requiring them.

2DD/2

Final Year MB,ChB Assessment Mapping: What Value Does This Add?

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Background: In high stakes examinations, tests of clinical competence, which allow decisions to be made about medical qualifications and fitness to practise, need to provide reliable and valid measurements of student performance. There are widely accepted criteria for sound assessment. At Stellenbosch University, there is also an assessment policy to provide a framework and to bring the assessment practices of the University in line with current, research-based views and standards regarding assessment.
Summary of work: An investigation was undertaken to determine what current assessment methods are being used at exit level in the Bachelor of Medicine, Bachelor of Surgery (MB,ChB) programme at Stellenbosch University and how these assessment methods are described in official module documents.
Document analysis of study guides for exit level modules was done for information relating to methods of assessment and their use. Assessment methods, divided into written and non-written formats, were mapped on an Excel spreadsheet against modules to provide an overall view of assessment for all final year modules.
Summary of results: Assessment practice varied across modules based on 1) the approaches and number of assessments, 2) weighting of individual components, and 3) the use of assessment tools.
Conclusions: Mapping the assessments can provide a useful reference overview for module and programme coordinators.
Take-home messages: The next step in this research would be to determine if there is sound assessment taking place and would provide some indication of the degree of alignment with the Stellenbosch University Assessment Policy as well as with international criteria.

2DD/3

Population aging, chronic diseases and final exams: are we asking the students the right questions?

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Background: Brazil is one of the world's fastest-aging countries; death and morbidity will be determined more than ever by chronic diseases, which medical students should be able to prevent and treat.
Summary of work: To assess if official examinations are balanced for gender, age and acute/chronic health

issues, we tested the last available three editions of both our Ministry of Education's and State Medical Council's examinations for last-year medical students. Both are multiple-choice examinations based on patient cases, which were classified according to gender, age and acuity. We excluded questions of pediatrics and obstetrics-gynecology.

Summary of results: From 117 identified patients in the questions, 57.26% were men, 35.04% were women (unspecified gender: 7.69%); 29.20% were 65+ years old and only 1.71% were aged 75. Acute problems were described in 75.21% of the questions; only 9.40% had a history of more than a year or were clearly chronic.

Conclusions: Examinations were biased towards younger men with acute problems. Chronic diseases frequently appeared as risk factors only; their prevention and management was seldom the case in point. Since the results of these examinations are widely used to assess the quality of medical education in our State, the imbalance we found may contribute to students' negative attitudes towards the study of geriatrics and chronic diseases.

Take-home messages: Inasmuch as undergraduate students need to be frequently exposed to elderly patients with chronic diseases, official examinations of final-year medical students in Brazil must emphasize the management of older people and chronic diseases.

2DD/4
Differences of learning strategies in passing the national medical licensing test (NT) step 1 of the 3rd year medical students in Thammasat university

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Background: The need to pass the national medical licensing test (NT) step 1 is important for Thai medical students. This study aimed to compare learning strategies between medical students who passed and failed the NT step 1 at Thammasat University.

Summary of work: The 3rd year medical students at Thammasat University were studied. Self-report questionnaire of learning strategies consisting of 10 subscales in 44 items of 5-point likert scales were completed. The questionnaire was modified from the Learning and Study Strategies Inventory (LSSI) to assess students' thoughts, behaviors, attitudes, behaviors and beliefs related to learning. Mean scores of each subscale were compared by independent t'test between students who passed and failed the test.

Summary of results: Of 113 students completing the questionnaire, 87 students passed the NT. The successful students showed significantly higher mean scores of 5 subscales including attitude of learning (p=0.003), time management to academic situations (p=0.036), concentration in class (p=0.024), ability to process information (p=0.043) and skill to identify important material (p=0.013) than those who failed the test. The successful students also had higher mean scores of the remaining subscales including motivation, anxiety when approaching a task, use of study aids, self testing and test preparation strategies, but not reached statistically significant level.

Conclusions: Better learning strategies were confirmed to result in passing the NT step1 in pre-clinical medical students.

Take-home messages: Learning strategies are important for medical students to pass the NT step1.

2DD/5
Relations between results of oral and written forms of exam on pathophysiology in 3rd year medical students

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Background: As a summative form of assessment of knowledge on pathophysiology we are using classic methods –multiple choice question (MCQs) test and oral examination (OE). We did not analyse up to now whether there is any relation between results of these two forms of assessment. The mentioned analysis may bring useful information on quality of examination.

Summary of work: We analysed results of students who underwent examination in pathophysiology during 2004 – 2012. Written MCQs test consists of 60 questions. One point was given for each correct answer. Oral exam consists of 3 questions. Marks A, B, C, D, E and Fx were used for assessment of presented knowledge.

Summary of results: During the observed period we have found tendency to improvement of marks on oral exam despite the results of MCQs test showed rather slight tendency to worsen. Generally, there is positive relation between value of average mark obtained at oral exam and number of points obtained at test in each year.

Conclusions: Both MCQs test and oral exam should be used for objective evaluation of knowledge on pathophysiology in medical students.

Take-home messages: Evaluate regularly assessment methods used in medical education and their results to improve fairness to students.

2DD/6
Fun and Formative Assessment in a Medical School with a Large Class Size

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Nancy J. Selfridge (Ross University School of Medicine, Integrated Medical Education, Roseau, Dominica)

Background: **In medical education, IT-supported games are stimulating instructional tools useful for formative** assessments, providing valuable feedback to students and teachers. We show that they accommodate large classes divided into teams. Also, having students compete in groups emphasizes collaborative skills.
Summary of work: At Ross University School of Medicine, classes entering Biomedical Sciences education are large. A fast-paced, competitive, interactive quiz game involving dermatology was developed for class wide participation. Held on the last day of class, it prepares students for high-stakes exams to continue their medical education.
Summary of results: Teaching and assessing dermatology rely heavily on images. Audience response technology allows questions about diverse skin diseases, images, and applied knowledge quickly. Faculty delivers the questions, most of which are second-and third-order. Up to 48 groups compete for prizes, making each gaming competition an exciting event. Competitions provide motivational settings allowing students to assess their own knowledge, becoming aware of any gaps. Information technology allows students to take ownership of their knowledge as they interact with their teammates and gauge their exam readiness. Prudent educational management is required to implement such a session.
Conclusions: Educational game competitions provide two-way assessments for students and faculty alike, deepening learning and teaching processes. They can accommodate large numbers of students.
Take-home messages: Educational game competitions are useful tools for formative assessment for large groups of students.

2DD/7
Strategies for Evaluation Used in Undergraduate Health Courses (Rehabilitation): Considerations for Educational Practice

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Background: At a time when teachers are called to rethink curriculum, educational projects and teaching and assessment practices, is an important challenge to implement new assessment strategies, to overcome the traditional educational model. The assessment of learning in health courses takes an important place: evaluating the development of skills and competencies demands the adoption of progressive assessment, involving different strategies to contemplate acquiring knowledge and developing attitudes.
Summary of work: This is an initial exploratory study, aimed identifying assessment strategies used in undergraduate courses of Physiotherapy, Speech Therapy and Occupational Therapy (FMRP-USP). This is a documentary study approaching 208 disciplines of these courses, analyzing summaries and timetables available online, following a reading guide.
Summary of results: There was a high prevalence of strategies considered "traditional": 73.92% of the disciplines using theoretical proofs, followed by seminars (46.44%), practical exam (20.62 %), clinical case discussion (14.88%), paper (13.31%) and use of portfolio (5%).
Conclusions: These results indicate that is very strong the presence of strategies considered "traditional" in undergraduate courses studied. This approach requires confirmation and complementation, hearing students and teachers in order to better assess the significance of these findings.
Take-home messages: While it is possible to identify the discrete emergence of "non traditional" assessment, measures to overcome the traditional educational model can be recommended.

2CC/8
Learning from your mistakes after an exam: related to learning styles, reflection or insight?

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Background: Collaborative learning after summative exams needs further study. Student ability to detect mistakes may relate to their ability to self-reflect or learning style.
Summary of work: 200 students chose 5 questions they thought they got wrong in a midterm multiple choice exam. Immediately afterwards, randomized groups discussed the questions in a reflective exercise. At home, they researched questions, completed a learning style inventory and a validated tool assessing self-reflection and insight (SRSI) behavioral measures. During the final exam, students self-selected 5 questions with no group discussion. Actual performance on these 5 questions and opinions on the reflective exercise were compared with learning styles and SRSI.
Summary of results: Students actually got 3.1±1.1 of these 5 questions wrong. Only the insight SRSI subscore

predicted ability to detect mistakes. Neither learning style nor reflection subscales of the SRSI were predictive. Perceived value of the reflective exercise varied by learning styles and correlated with engagement in reflection and need for reflection SRSI subscores. Doers were lower scorers than thinkers or feelers for both. Thinkers and feelers valued the exercise more than doers or watchers for most measures.

Conclusions: Student characteristics poorly correlate with ability to detect mistakes. However, the perceived value of post exam reflective exercise designed to improve this ability did correlate with learning style and SRSI reflection subscores.

Take-home messages: Understanding characteristics which enhance important skills of reflection and error detection may improve curricular design. Not all students perceive their value: focus efforts to engage doers and watchers.

2DD/9
Are Supplementary/Re-sit Examinations Valid?

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Background: Students are allowed to re-sit examinations after a short remedial period if they fail in one or two courses/modules in a semester in phase II of the MD degree programme. Students' grades can revert from F to any grade on the normal A to F scale depending on the in-course assessment marks and the marks they obtain on the second sitting of the failed component. The main purpose of these re-sits was to ensure that students have achieved minimum competence in a module to be allowed to progress to higher level modules in the next semester and would, thus, progress normally and without delay in their degree programme.

Summary of work: The progression of students who were allowed re-sit examinations from fall 2009 to fall 2012 was studied.

Summary of results: The number of students who were granted re-sit examinations was 49. Seventy three percent of them are on probation now or/and are repeating a year regardless of the grade obtained from the re-sit, or, due to low grades obtained in other modules. Only 1 student has, so far, progressed without delay.

Conclusions: Re-sit examinations in the current system do not seem to fulfil their purpose of preventing students from being delayed in their degree programme.

Take-home messages: The regulations of granting re-sit examinations in the College need to be looked at.

2DD/10
Benefits of negative marking at the European Board of Ophthalmology Diploma (EBOD) examination, both for organiser and candidates

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Background: European postgraduate medical assessment has developed during the last 25 years. Currently all European medical specialities examinations use MCQ's. The EBOD examination uses multiple independent true/false MCQ's for the written part of the examination. Since true/false MCQ's may be prone to guessing, thorough statistical evaluation has been set-up over the last five years to monitor the performance.

Summary of work: In 2010, the European Board of Ophthalmology (EBO) decided to introduce negative marking for the MCQ's. To study the influence of negative marking on the performance/reliability of the examination, the following statistical performance parameters of test items have been compared: P-statistics, Rit-statistics, Cronbach-alpha and 3-parameter item-response analysis.

Summary of results: A decrease in average P-statistics ($P<0.66$) and increase in average Rit-statistics ($Rit>0.15$) and Cronbach-alpha (>0.85) was observed compared to the situation without negative marking ($P>0.75$; $Rit<0.15$; <0.80). 3-parameter item-response analysis revealed that the questions were less influenced by guessing correctly (average $c<0.33$). It was also confirmed that female candidates are not discriminated regarding their chances to pass EBOD.

Conclusions: Introduction of negative marking at EBOD did lead to better item and examination performance values, without having any negative side-effects (such as discrimination of female candidates).

Take-home messages: negative marking at the European Board of Ophthalmology Diploma (EBOD) examination has proven successful both for organiser and candidates.

2DD/11
The effect of reused multiple-choice questions - case study in fifth-year pediatrics rotation

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Background: Reutilization of multiple-choice questions (MCQ) on an examination is a concern because teachers do not want to unfairly aid examinees, for example, by sharing the item content from earlier to later examinees.

Summary of work: 238 examinees were assessed within 8 pediatrics rotations in 2011/12. Each examination had 40 MCQ. From the total 161 MCQs designed over the year, 36 (22.4%) were used twice, 15 (9.3%) three times, 13 (8.1%) four times and 12 (7.4%) 5/6 times. Mixed effects models were used to estimate the effect of reutilization of MCQs.

Summary of results: The mean of the correct answers increased 1.4 answers per rotation (p<0.001). The facility index of the MCQs increased 6.0% per repetition (p<0.001). After adjusting for the MCQs repetitions the increase of mean of correct answers decreased to 0.7 answers per rotation (p<0.001).

Conclusions: The reuse of MCQ in rotations within the year inflated the mean of correct answers per rotation. Nevertheless, the remaining increase may be explained by real differences between examinees' ability or differences in the level difficulty of different examination forms during rotation. The use of non-equivalent equating design to adjust the differences in the level difficulty of different test forms during rotation is put in doubt if multiple reutilizations of MCQs are needed.

Take-home messages: Multiple reuses of MCQs in rotations within the year is an unfair aid for later examinees, therefore should be avoided, even more if the teachers want to correct possible differences in the level difficulty of different test forms during rotations.

2DD/12
Cueing Effects of Item Writing Flaws in Multiple-Choice Questions

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Background: Multiple-choice questions are frequently used in high-stakes assessments across health science disciplines. Many test items, however, contain cues to the correct answer allowing students without the requisite knowledge to correctly answer the test item. The purpose of this study was to examine the cueing effect of five common item-writing flaws: word repeats in the question stem and the correct option, the longest option is correct, use of absolute terms in the options, use of 'all of the above' and use of 'none of the above' as options.

Summary of work: We reviewed 3623 test items used in one school of nursing over a 7-year period. Questions were evaluated for 19 frequently occurring item-writing flaws, including five of the above identified flaws. We compared the proportion correct and the item discrimination indices of the flawed items with unflawed items.

Summary of results: Items containing the identified item-writing flaws were significantly less difficult and less discriminating than unflawed items. Students were more likely to select the correct answer in questions that contained cues.

Conclusions: Cueing in multiple-choice questions is common and the presence of cueing flaws in test items would enhance student guessing on multiple-choice tests.

Take-home messages: Adequate training in item-writing is recommended for all faculty members who are responsible for developing tests. Peer review prior to test administration to identify cuing flaws may also improve the quality of test items and reduce cueing effects.

2DD/13
Comparing functioning and non-functioning distractors in progress test with four- or five-options multiple-choice questions

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Background: Tests with multiple choice questions are a way of assessing the student's knowledge in the progress testing. There are still doubts about the number of options needed to adequately test the knowledge of undergraduate medical students. Our aim was to evaluate the functioning of distractors in tests with 4 and 5 options.

Summary of work: We evaluated the proportion of nonfunctioning distractors on seven progress tests applied to undergraduate medical students. Five tests were prepared with five-option MCQ (5o-MCQ) and two tests with four-option MCQ (4o-MCQ). We selected the questions with difficult index between 0.25 and 0.75 and the point biserial correlation coefficient (RPB) greater than 0.2. Nonfunctioning distractors were defined as those that were chosen by less than 5% of students and/or those with RPB equal to or greater than zero. We compared functioning and nonfunctioning distractors between tests with 4o-MCQ or 5o-MCQ.

Summary of results: The tests that were prepared with 4o-MCQ had a lower frequency of distractors that were chosen by less than 5% of students or those with RPB equal to or greater than zero and a higher frequency of questions with all function distractors. There was no

difference on the reliability when comparing tests with 4o-MCQ or 5o-MCQ.

Conclusions: There were more plausible and attractive distractors for students in tests with 4o-MCQ. Our results suggest that teachers have difficulty in preparing the fifth plausible distractor for 5o-MCQ.

Take-home messages: Do not spend time preparing a distractor that does not function well. Work hard preparing tests with very good MCQ with four options.

2DD/14
Reliability of multimethod assessment of medical students rotating in internal medicine

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Background: Multimethod assessment has been increasingly suggested for evaluation of medical students in order to overcome limitations of individual formats. Component of the combinations and its reliability has not been extensively reported. This study aimed to determine reliability of multimethod assessments utilized in evaluation of medical students.

Summary of work: Assessment methods in internal medicine rotation for 5th year medical students at department of medicine, Siriraj hospital were divided into performance evaluations (PE) and examinations. Performance evaluations were carried out by teachers during teaching session including outpatient clinic, bedside teaching, small-group teaching, patient report and ward evaluation. Examinations comprise multiple essay question (MEQ), lab and long case exams. Evaluation scores were analyzed utilizing multiple linear regression models to determine the correlation with students' grade point average (GPA) which reflects the students' overall performance.

Summary of results: The final composite score from multimethod assessment show good correlation with GPA ($R^2 = 0.56$). The correlation was attributed in greater extent by examination scores. Performance evaluation, however, showed significant correlation with students' overall performance. It could, therefore, be integrated with examinations in evaluating students' performance during their clerkship as they are crucial for determining medical students' clinical competency when encounter patients.

Conclusions: Multiple methods of evaluation comprising several assessments during teaching activities and examinations focused on clinical diagnosis show good reliability for evaluating medical students.

Take-home messages: Assessment of medical students should include performance evaluation in multiple domains of competency.

2FF ePosters: eLearning 1
Location: North Hall, PCC

2FF/1
Smartphone and tablet usage among medical students in Prince of Songkla University

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Background: There are many benefits of smartphone and tablet, user can bring them everywhere, communicate with others. Moreover smartphone and tablet facilitate learning in medical students. However, there's little information about usage of smartphone and tablet among the medical students especially in Thailand.
Summary of work: To study the number, buying reasons, usage, necessary medical application, role in medical education, effects and opinion in promoting smartphone and tablet for support of medical education among first to sixth year medical students in Prince of Songkla University. In this descriptive cross sectional study, the data were collected by a self-reported questionnaire that was completed by 646 students.
Summary of results: There were 646 subjects included in the study which accounted for 82.93% response rate. The subjects were 18-31 years old, 55.11% were female, and their incomes were 7,000 baht/month. Most of medical students use only smartphone (74.61%). Calling is the main reason for owning smartphone (90.66%). Education is the main reason for owning tablet (95.44%). Total time of using smartphone are 6 hours/day same as tablet. They use smartphone for social network for 2 hours/day while they use tablet for education and entertainment for each 2 hours/day. Most necessary medical application in preclinical students is Dorlans Medical Dictionary and in clinical students is Medscape.
Conclusions: Most medical students use either smartphone and tablet and think that devices support medical education and agree with using smartphone and tablet in medical learning.
Take-home messages: The smartphone and tablet are options in medical learning.

2FF/2
Healthcare professionals' use of mobile phones and the internet in clinical practice

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Background: Little is known in regards to healthcare professionals' (HCP) use of and attitudes towards smartphones within clinical practice. Aims of this study were to enumerate the number of HCPs that use mobiles within clinical practice and compare attitudes towards using mobiles and the internet.
Summary of work: Forty-three HCPs completed an anonymous online survey.
Summary of results: 91% of HCPs owned a mobile of which 87% used it during clinical practice. No HCP was supplied with a smartphone by their clinical workplace. Consequently they used their privately owned device. For ten out of eleven statements HCPs had significantly more positive attitudes towards the internet than mobiles. Mobiles were only perceived negatively for two statements: 1) in regard to confidentiality; and 2) HCPs' having the perception that patients may think that they are using mobiles for non-medical purposes.
Conclusions: Mobiles, including smartphones, are commonly used within clinical practice and at present most HCPs use their privately owned device. Despite HCPs having more positive attitudes toward internet use, their attitudes towards mobile use were largely positive.
Take-home messages: Mobile use, in particular smartphone use, within clinical practice is likely to increase in the future.

2FF/3
Just in Time? Using QR Codes for multi-professional learning

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Background: Clinical policies and guidelines are widely available but access can be difficult at the required time and place. Clinical staff with smartphones could use QR codes for contemporaneous access to relevant information, supporting good practice – the 'Just In Time Learning' (JIT-L) paradigm.
Summary of work: A list of high-yield clinical guidelines was generated and content adapted for smartphone viewing. QR Codes were generated for each topic and positioned around a medical ward. Website analytics and semi-structured interviews were performed to evaluate usage and educational value.
Summary of results: Use was intermittently high but not sustained. Thematic analysis demonstrated a positive assessment of the JIT-L paradigm. However,

notable barriers included usability of QR codes and appropriateness of smartphone use in front of patients. The JIT-L paradigm was valued but not fully exploited with some participants also creating 'information libraries'. Usage was affected by technological skills, individual educational requirements and acceptance of smartphone use in clinical environments.

Conclusions: JIT-L for education and reference may be beneficial for healthcare professionals. Alternative methods of information retrieval for less technologically-literate users and a change in culture of mobile-device use in clinical areas are needed.

Take-home message: •Healthcare staff use and value timely, high-yield, contextually relevant clinical information. •Smartphone use is viewed as inappropriate within ward areas, even when used for clinical support. •Smartphones can deliver educational resources, however a system is needed to link the online resource with the real-world situation. One such system, QR codes, worked poorly in practice.

2FF/4
Smartphones in Western medicine – is our use eroding core ethical principles? A review of clinical cases compromising medical ethics

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Background: Smartphone technology is increasingly utilised in the daily management of patients within western medicine. Recent evidence suggests that 75% of junior doctors own smartphones with 57% admitting to using them during ward rounds. We believe core medical ethics are in danger of erosion with the increased use of smartphone technology in the hospital setting.

Summary of work: Four distinct clinical scenarios were identified where adherence to core medical ethical principles was drawn into question. They were: (1)An Anaesthetist engaged in smartphone based games intra-operatively; (2) Use of non-accredited translation software on a ward round; (3) Utilisation of smartphones by junior doctors to communicate sensitive patient information; (4) Use of medical applications by patients to guide treatment. Each scenario was analysed using one of the four medical ethical principles of Autonomy, Non-Maleficence, Beneficence and Justice.

Summary of results: Owing to the vast spectrum of opportunities for smartphone use in western medicine, we determine that clinicians should critically appraise each situation when they resort to smartphone use. It is our hope that through the discussion points we raise, clinicians are better informed on the correct use of mobile technology, resulting in the maintenance of core medical ethics and ensuring the highest levels of patient safety.

Conclusions: Through this discussion of the common scenarios encountered in clinical practice we hope to have reviewed the use of smartphones and ultimately improve the integration of emerging technologies for the benefit of patient care.

Take-home messages: We hope to improve the integration of emerging technologies into western medicine for the benefit of patient care.

2FF/5
Using blogs to teach Evidence Based Medicine (EBM) to medical students

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Background: Blogs are one of the web 2.0 technologies that allow interaction and collaboration in the online environment.

Summary of work: The current study used blogging to augment teaching of an Evidence Based Medicine (EBM) course to undergraduate medical students. The course is based on classroom teaching of the principles of EBM and composed of tutorials and practical sessions. Students are required to register in a blog service and post their work regularly. Each student selects a topic, formulates a question, identifies suitable databases, describes their search strategy and the results they got. At the same time, each student should give feedback for at least 2 other students. At the end of the course, students were invited to complete an online evaluation survey.

Summary of results: About 69% believe that using the blogs make the course more enjoyable while 57% think it increased their enthusiasm. The blog discussion was believed to help understanding the EBM concepts mainly through reviewing others' work and being reviewed by others (63% and 34% of students respectively). Most of participants (76%) recommend using the approach in similar courses.

Conclusions: Using blogging activity seems to be a successful strategy for student engagement. Moreover, being asked to review their peers' work make students more attentive to the concepts and methods used in EBM and can lead to deeper learning. Further studies to measure the effect on learning outcomes is needed.

Take-home messages: Augmenting classroom teaching by blogs as a platform for practice and discussion can improve the learning experience.

2FF/6
Facebook Medicine in Taipei Medical University

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Background: Social networks especially Facebook have become a great venue for medical educators to teach various skills and techniques or to share information with medical students. Facebook comes in very handy especially when medical staff is working and material can be shared online in real time. A group started at Taipei Medical University (TMU) Wan-Fang Hospital successfully exploited Facebook's features to make training more efficient and interesting.

Summary of work: The group was named WFH Echo Course. Members within the group are the only ones sharing information without interfering with the rest of Facebook's activities of any of the group's members. Members can post information related to emergency medicine, images and related material only. They can only invite others with related background to join and bring in ideas, suggestions or to undergo training. They also use Facebook to make class appointments.

Summary of results: WFH Echo Course group grew from 8 members to 337 in 15 months. They comprise educators, specialists and medical staff that are either training others, participating with ideas or are undergoing training. All members expressed a faster, more efficient and more interesting learning process as a result of the group formed.

Conclusions: The benefits are not only for medical staff undergoing training but also educators are able to learn various new things. By posting various materials both instructors and trainees take advantage of easily providing necessary information and feedback but most importantly reaching out and educating a lot more people than just medical staff.

Take-home messages: Facebook's features makes possible for discussions on both horizontal and vertical levels regardless of the rank in education or profession of the people in the group. The learners expressed great satisfaction and increasing interest in this social network since both learning from their educators and other experienced individuals and experts in the field is possible.

2FF/7
Using a Mobile Application as a Supplemental Tool for Student Evaluations - Adding iEvaluation to e-Evaluation

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Background: In 2012, we developed a mobile application (app) for the iOS platform enabling students to access our clinical teaching assessment instrument using their smartphone. It is not yet known if application-based evaluation is a useful addition to web-based evaluation.

Summary of work: The assessment instrument, a web-based questionnaire of 10 questions (Likert scale 1–6) and text box for comments, was ported to a mobile app. The app was launched for the autumn semester of 2012 for third- to fifth-year medical students at Uppsala University (Sweden). Evaluations submitted through the app were compared to those submitted through the website.

Summary of results: Approximately 45 % of the students concerned owned an iPhone at the end of the semester. Out of 1734 submitted evaluations 21.7 % were submitted using the app (n = 376) versus 78.3 % submitted through the website (n = 1358). Female students were more prone to evaluate using the app (female: 25 % versus male: 17 %) (p<0.001). No difference in mean ratings±SD was observed between app evaluations (4.30±1.12) and web evaluations (4.36±1.08) (p=0.38). The distribution of ratings on the scale (1-6) was similar in both groups. The prevalence of free text comments did not differ between app evaluations (49 %) and web evaluations (53 %) (p=0.16).

Conclusions: Evaluations submitted through a mobile application did not differ in mean ratings or prevalence of free text comments compared to web evaluations.

Take-home messages: Mobile app-based evaluation appears to be a useful addendum to web-based instruments.

2FF/8
Staff experience of online education

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Michael Ross (University of Edinburgh, Centre for Medical Education, Edinburgh, United Kingdom)

Background: E-learning continues to expand in the delivery of clinical education. Much has been published on learners' experiences of e-learning while the experience of those delivering the education has received less attention.

Summary of work: The experiences of those involved in the delivery of an online masters programme in clinical education were sought by means of semi structured interviews. Teaching involvement includes recording lectures and delivering live synchronous video tutorials. Questions centred on the differences between online and face-to-face teaching. Ten interviews were undertaken and the transcripts analysed using a grounded theory methodology.

Summary of results: The emergent themes centred on the steep learning curve for staff involved in this aspect of education. Specifically the additional time required for the preparation of online resources, the challenge of working out of their comfort zone, the development of new skills (in particular multi-tasking in online tutorials). The strength of the online community was highlighted along with the level of student engagement. Variable

internet connection was often a distraction to the academic discourse.

Conclusions: The staff interviewed were generally positive about their online teaching experiences but in agreement that the experience was very different to teaching face-to-face and required a different skill-set. The additional preparation time was unexpected and due mainly to the perceived need for back-up plans should the technology fail.

Take-home messages: Technology requires further development to meet the challenges required of it for effective online pedagogy. Staff require different skills to teach effectively online affecting training needs. Online teaching does not take less time than face-to-face,

2FF/9
"Virtual Rounds": an e-learning tool to optimize medical students' in-hospital experience

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Background: In the last decade we have seen the emergence of new educational tools directed to students who are connected to the internet throughout the day. We have developed a website based on daily discussion of real clinical cases and related topics, with links directing to relevant clinical papers.

Summary of work: Moodle was used to host the pedagogical material assessed by 109 sixth year medical students during 2012. In Virtual Rounds, a clinical problem solving activity, a real case was discussed over a week. Every day, a question about the data released was performed, allowing students to debate in virtual environment. We provided a quiz section with commented questions and answers and the Extreme Decisions category, in which an emergency case was analysed in the form of successive multiple-choice questions, with the correct answer leading to the next question until the resolution of the case. Weekly examples of electrocardiogram, chest x-ray and arterial blood gas were also provided.

Summary of results: Each student had, on average, 1,244 pageviews (15-6,869), 41 accesses (1-253), and 21 posts (0–363) during the year, although their participation was concentrated in the two months they were at the curricular course of emergency. Virtual Round accounted for 38% of the accesses, followed by Extreme Decisions (30%) and the Quiz (17%). There were, on average, 414 pageviews per day, getting to 5,342 in the days before the exams.

Conclusions: Virtual Rounds were widely accepted by students as a way to complement and optimize in-hospital experience and as a study tool for exams.

Take-home messages: E-learning tools based on daily medical activities encourages students' clinical

reasoning and should be included among the options available for study and training.

2FF/10
A German web-based training curriculum "Prevention of child sexual abuse" for medical students and health professionals

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Background: Health professionals frequently come into contact with or are chosen by sexually abused children as confidants whom they entrust with being able to help. However, as the German Federal Ministry of Education and Research (BMBF) has acknowledged, current medical education does not sufficiently prepare health professionals for this complex task.

Summary of work: Financed by the BMBF from 2011-2014 a 30 hours web-based training for medical students and health professionals concerning child sexual abuse and child protection (www.elearning-kinderschutz.de) is being developed and evaluated. The course utilises texts, case studies, collaborative exercises and video interviews. Its quality and different learning settings are being evaluated using knowledge gain, self-efficacy and acceptance of abuse myths as dependant variables.

Summary of results: Currently 52 medical students and 379 medical professionals are part of the approx. 3000 users of the course. Before its start, 49% of all participants answered that they do not or rarely feel confident of knowing how to act when confronted with a case of child sexual abuse. After participating in a quarter of the course 95% of the users (fully) agree on gaining theoretical knowledge and 64% on gaining practical knowledge on how to react competently to a case of child sexual abuse.

Conclusions: The aim of our research project is offering an accredited, standardised and evaluated web-based training on the prevention of sexual child abuse as a resource for medical students and health professionals.

Take-home messages: The gap in the current medical education concerning the prevention of child sexual abuse is being closed with this web based training course.

2FF/11
From cyber to a nationwide academic forum: A 10 year experience developing expertise and an educational platform in clinical infectious diseases in Japan

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Background: The subspecialty of infectious diseases is a new area of expertise in Japan. Implementing integrated curriculum in infectious diseases has been a major challenge and it still requires critical mass in this expertise.

Summary of work: This is a case study to report a cyber forum and its activities and developments over the past 10 years. A mailing list including 12-13 experts or trainees in clinical infectious diseases was initiated in 2002. The major purpose of this cyber network was to discuss clinical cases in infectious diseases to support doctors or trainees without specialists in their institutions.

Summary of results: Since 2005, stemming from this cyber forum, a nationwide academic association (Infectious Diseases Association for Teaching and Education in Nippon, IDATEN) has been developed with over 5,500 participants. The number of exchanged emails is approximately 1,000 per year with a total number of over 10,000 since 2002. IDATEN has initiated a face-to-face interactive conference four times a year, and short intensive seminars in clinical infectious diseases twice a year.

Conclusions: The impact of this cyber forum has been tremendous in providing clinical advices, cutting-edge learning opportunities, and networking among those who are interested.

Take-home messages: While maximizing efforts to improve formal medical curriculum throughout Japan, the impact of this cyber and live network is noteworthy in clinical infectious diseases.

2FF/12
Are webinars an effective educational tool to improve spinal patient care?

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Background: Face-to-face learning is becoming less accessible for spine care specialists due to cost, time, and geographic location, therefore, live webinars were delivered in an attempt to make education more available. This study evaluated if this educational format

is effective in improving surgeon performance and patient care.

Summary of work: Between 2011 and 2012 five webinars were delivered on topics aligned to an overall curriculum in spinal pathologies. After each webinar participants received an eight-question online survey asking how relevant was the content presented in the webinar to their daily practice and , how likely is it that they would make one or more changes in their clinical practice as a result of participating in this educational event. Participant demographics were also recorded as well as their overall satisfaction with the experience.

Summary of results: 403 practicing surgeons and surgical trainees attended the five webinars and a total of 212 participants completed the postwebinar survey. 82% reported the webinar content to be either 'quite' or 'highly' relevant., 36% of the respondents reported they were 'likely' and 15% reported they were 'very likely' to make one or more changes in their clinical practice as a result of participating in the educational event.

Conclusions: The results show a high percentage of self-reported intention to change in all of the webinars. Combined with high satisfaction and participation rates, these data suggest that surgeon behavior and performance can be changed using this educational format. Future work could add methods to measure if participants made their intended changes in their practice.

Take-home messages: Live and archived webinars are a valuable educational format to include in the overall portfolio for delivering a curriculum. Participation in a webinar can cause intention to change practice in qualified and trainee surgeons.

2FF/13
SimPhys: A pilot study using simulation to teach basic cardiovascular physiology

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Background: Simulation is not often used to teach medical students in the early stages of training but Gordon et al (2010) argue that emotional activation when dealing with a dynamic clinical case improves learning. The practical involvement with the case ties in with Kolb's (1984) notion of experience within a learning cycle. Flexner (1910) said "There is no cement like interest, no stimulus like the hint of a coming practical application." Had 'sim-man' existed in the early 1900s, Flexner might have encouraged its use with early years medical students.

Summary of work: Twelve first year medical students volunteered for a session using high-fidelity simulation to teach physiology underlying hypovolaemia and heart failure. Focus groups explored experiences of the session and opinions on potential for Simulated Physiology within the curriculum.

Summary of results: Students identified five ways that simulation impacted on learning; motivation, context,

understanding, memorability and increased self-awareness. The importance of interactivity, "learning by doing", was recognised. Students also proposed Simulated Physiology as useful revision and integration of systems, noting that it mapped better to current examination questions that traditional teaching.

Conclusions: There is a drive to integrate 'pre-clinical' and clinical medicine, yet many emphasise the importance of basic sciences (Jonas et al. (1989)). This small pilot study suggests that simulation is a useful and safe environment to provide clinical context to basic sciences, which may enhance learning.

Take-home messages: Simulation can be useful for undergraduate as well as postgraduate learners. A more extensive project is underway to further explore the potential for Simulated Physiology.

2FF/14
A Systematic Review of Mobile Applications for Mental Health Education

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Background: Studies suggest mHealth technologies may be powerful educational tools for addressing stigmatized mental health issues. Because formal evaluations of the usefulness of mental health apps are limited; there is a need to assess available apps and to create a conceptual framework to understand their role in mental health education.

Summary of work: A systematic review is being performed on educational mobile devices and tools for depression. The search term "depression" was entered on five leading platforms (Apple, Google, Nokia, Blackberry and Windows). Search results were classified as "relevant," "partially relevant," or "not relevant". Data are being extracted from eligible apps on a set of pre-determined indicators.

Summary of results: Preliminary Results: A pilot search generated 1,020 existing apps (Google: 479, Apple: 421, Windows: 69, Nokia: 36, Blackberry: 15). Of 599 apps reviewed to date, 220 were identified as relevant. A preliminary thematic content analysis was performed to guide the comparative analysis and to inform a representative coding scheme based on function, resulting in five categories: psycho-education (81), diagnostic assessment (33); symptom management (40); therapeutic treatment (58); and supportive resources (8). Features of apps include online books, mood and activity diaries, support resources and forums, interactive games and news aggregators; evidence-based information is largely absent.

Conclusions: The categorization of apps will inform the comparative thematic analysis and assessment and the development of a conceptual framework for mobile apps.

Take-home messages: This review is identifying education gaps and informing the development of a conceptual framework to assess mobile tools and applications in depression. This conceptual framework will be tested for generalizability by repeating searches in other mental health domains.

2GG ePosters: International Dimensions
Location: North Hall, PCC

2GG/1
Erasmus Week at the LernKlinik Leipzig, Germany: a peer-teaching course program for international students

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Background: During the past 10 years, the number of international students applying for an Erasmus stay at the University of Leipzig Medical Faculty has risen constantly. For the academic year 2012/13, n=35 students from 10 nations were enrolled. So far, no clinical preparatory courses were offered to master the challenges of international students, such as the communication barriers to patients and fellow national students or the integration into a foreign medical education system.
Summary of work: A peer-student training week for international students was implemented. The 13 courses offered were selected according to the clinical rotations most frequently chosen by Erasmus students. The course structures were adapted to the international students, i.e. by decreasing the load of learning objectives and creating medical terminology lists with frequently used German terms. Computer-based, anonymous questionnaires for course evaluation were distributed prior to and after the course week. Another post-course questionnaire is to be distributed to the international students before leaving Leipzig.
Summary of results: Preliminary questionnaire evaluations show very good evaluation scores for the courses given, not only concerning the amelioration of clinical skills trained, but also concerning the German-speaking ability and use of German medical terminology. Having the opportunity to make first contacts to German medical students in the peer-teaching atmosphere was also considered as extremely valuable.
Take-home messages: The combination of clinical skills training, medical terminology usage in the foreign language and contact possibilities to local medical peer-teaching students can be considered an effective measure to promote internationalization in medical education.

2GG/2
Developing a model for global health medical education: applying learning theories to teaching in resource-poor settings

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Shirley Lee (University of Toronto, Department of Family and Community Medicine, Canada)

Background: Global health (GH) partnerships have dramatically increased over the last decade. Many training programs are developing GH streams and partnering with resource poor areas (RPA). Little scholarship, however, is done on the applicability of principles developed in resource rich areas (RRAs) for use in RPAs.
Summary of work: This study reviewed theories of learning in medical education, cross-cultural teaching, and best practice and technology use in GH. Current field concepts were analyzed to develop a novel model to guide education in RPAs.
Summary of results: Instructors from RRAs teaching in RPAs should apply the following process, with reflection-in and on action:
-Preparation: Know local medical milieu; Base recommendations on best practice in GH
-Partnership: 'Instructor' brings medical expertise while 'Trainee' provides the reality for application; Interaction creates the lesson's end message
-Adult Learning: Partnership; Engage experiences; Goal oriented objectives
-Longitudinal Focus: Telecommunication for sustaining relationships; Focus equally on similarities & differences between medical cultures
-Evaluation: Modify examinations to context; Evaluate teaching for relevance.
Strengths include amalgamation of numerous theories, flexibility for use in multiple settings, and a novel model on which to build. Weaknesses include lack of evaluation and focus on educators from RRAs.
Conclusions: This new framework provides a structure for education in GH programs and can be used as a basis for developing further theory and discussion in Global Health Medical Education.
Take-home messages: Theories of education should be modified when applied in GH settings. Using this new model will help frame a process for education in RPAs.

2GG/3
Development of a glossary for International Medical Graduates undertaking General Practitioner training in the United Kingdom

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Background: The Membership of the Royal College of General Practitioners (MRCGP) examination is the compulsory assessment of all doctors wishing to become General Practitioners (GPs) in the United Kingdom (UK). One of the three components, the Clinical Skills

Assessment (CSA) is a formal test of clinical and consulting skills. For the academic year 2010-11, 2,820 candidates made a total of 3,590 attempts at the CSA. 1,903 (90.6%) of the attempts resulted in a pass for UK graduates, compared to 548 (36.8%) for international medical graduates (IMGs).

Summary of work: This project aimed to develop a glossary for IMGs containing colloquialisms, slang words and idioms relevant to communicating with patients in the UK. A questionnaire was administered to IMGs at the local GP training centre to ascertain if they felt this would be a useful resource. The content of the glossary was developed by a combination of themed brainstorming sessions with local GP trainees, the authors' own experiences in practice and talking to colleagues and family.

Summary of results: Ten (50%) IMGs completed the questionnaire. Although the numbers were small, the respondents thought the glossary would be useful. This gave us an indication to proceed with the glossary; the IMGs preferred formats were a booklet, online resource or CD-ROM.

Conclusions: The usefulness of the glossary now needs to be assessed. This project could be extended to other areas of the UK where there are more IMGs and also where regional dialects may impact upon communication with patients.

Take-home messages: Resources need to be developed to improve IMGs success in the CSA.

2GG/4

Impact of a preparatory English language clinical skills program on the competence and self-efficacy of Japanese Medical Students wishing to study abroad

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Background: An international clerkship in English-speaking countries is often educational for international medical students. Previous studies suggest these students face challenges to perform in clinical environments due to suboptimal spoken English language skills and cultural differences. We studied how our educational intervention impacted on students' competence and self-efficacy.

Summary of work: In 2012, we had 10 elective applicants who passed a written TOEFL-based English examination. We provided 9-sessions of a preparatory "Medical English" program focusing on basic clinical skills such as history taking, physical examination and presentation skills in the 'Western' context. We assessed learners through a simulated clinical encounter which was scored by a 'blinded' Canadian physician. Students also judged their own competence and self-efficacy before and after the course using the retrospective pre-post format.

Summary of results: Students with an attendance >60% got statistically higher score in the simulated clinical encounter than those with a lower attendance rate. Retrospective pre-post self-assessment revealed all students felt they improved their English communication, history taking and case presentation skills (p<0.05).

Conclusions: In students with similar baseline competence in written English communication skills, our program was able to better prepare students for the type of clinical experience they would encounter and helped them improve their self-efficacy in their communication skills. Further research is needed to determine how the program actually influences students' performance at an international clerkship.

Take-home messages: A preparatory Medical English course may improve self-efficacy and abilities of clinical functioning in students planning to undertake international electives.

2GG/5

Are the PBL cases from a UK-based medical school transferable to an international cohort? The London-Cyprus experience

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Background: In 2011, the first cohort of students undertaking the franchised MBBS graduate entry programme at St George's University of London (SGUL) started at the University of Nicosia in Cyprus. PBL is the key learning strategy used in years 1 and 2.

Summary of work: The PBL cases were designed for a UK-based curriculum so delivery to a much more international cohort (21 countries) was potentially challenging. Further, it was not permitted by Cypriot law to make any significant changes to the PBL cases. Prior to the commencement of the course, all the cases were examined by a team from Cyprus under the guidance of their London colleagues. Supplementary information was provided to students where necessary.

Summary of results: The evaluation of the cases highlighted differences relating to (a) nuances of the English language (b) UK-specific cultural issues, and importantly (c) differences in medical care and support services. Other factors considered included running cases simultaneously in two countries in different

timezones and finding appropriate tutors. Evaluations pointed to several differences that were not prohibitive in delivering the curriculum. Indeed the Cyprus cohort of students performed at least as well as their UK counterparts. The additional information provided supported student learning and broadened their understanding of global healthcare issues.

Conclusions: A PBL curriculum created for students from the UK can run just as effectively in Cyprus with a group of international students.

Take-home messages: PBL cases are transferable between Cyprus and the UK, provided there is cooperation and support.

2GG/6
Swansea–Gambia link – A global partnership developing local educational resources

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Background: Since 2007, the Swansea-Gambia Link has facilitated exchange of medical school staff and students. Recently, it was mutually recognised that clinical skills teaching in the Gambia could benefit from being more structured.

Summary of work: Funded by Welsh Government under the 'Wales-for-Africa' scheme, two experienced clinical skills tutors and one medical student worked with Gambian students in Gambia to film seven standardised clinical examination videos as a learning resource and reference for all Gambian medical students. A checklist for each was finalised involving Gambian teachers to allow for differences in technique. These videos were filmed in the Gambia and brought back to Swansea to be edited and annotated, each comprising a comprehensive examination and short presentation of clinical findings. Four Gambian clinical trainers came to Swansea for training in formalised and standardised clinical skills teaching methods, assessment techniques, feedback and small group teaching.

Summary of results: Initial student evaluations demonstrated increased confidence in performing clinical examinations. Students appreciated a reliable learning resource and have asked for further videos to be made, these will be evaluated. The Swansea-Gambia Link facilitated the success of the project in the Gambia and strengthened collaborations.

Conclusions: Clinical examination videos relevant to the Gambian environment provide a reliable and structured learning resource for medical students. Training faculty and students ensures sustainability, facilitated by existing partnerships. Clinical examination techniques are universal and can be adapted for each clinical environment and population.

Take-home messages: Clinical examination videos relevant to the Gambian environment provide a reliable and structured learning resource for medical students. Training faculty and students ensures sustainability, facilitated by existing partnerships. Clinical examination techniques are universal and can be adapted for each clinical environment and population.

2GG/7
Identity negotiation in medical students: a comparison between the UK and USA

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Background: Medical students grapple with negotiating their personal and professional identities. Whether this negotiation is cultural and context dependent is unknown. This study explores how medical students in two different educational settings, the NHS in the UK and a private clinic in the USA negotiation their identities.

Summary of work: Focus groups were conducted at the Mayo Clinic in the USA and Durham University in the UK to explore how students negotiate their professional identities. Participants were medical students at each institution. Data collection and analysis was based upon grounded theory.

Summary of results: Results will be presented demonstrating how the similarities and differences in how medical students negotiate their personal and professional identities within the UK and USA. Commonalities such as an increased requirement for professionalism within the social media domain and differences with regard to societal expectations will be demonstrated. Links to the Hidden Curriculum will be highlighted.

Conclusions: There is an ever increasing expectation for medical students to become mini-doctors from day one of medical school. Often, this makes students unable to go through a transitional or developmental period. Subsequently, they struggle to negotiate their personal and professional identities. Despite some cultural differences, medical students in the UK and USA experiences similar scrutiny and thus anxieties.

Take-home messages: Despite differing societal expectations, educational settings and cultures, all medical students struggle with identity negotiation and formation. Work needs to be done to aid students in their transition from student to clinician.

2GG/8
Medical students' perception of their current and career needs for defined global health and health equity competencies

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Background: This study examines the use of an innovative approach to the use of competency expectations related to promoting global health and health equity to promote medical students' reflection and self-assessment, and inform curriculum development.
Summary of work: In 2012, 29 medical students enrolled in a newly developed Global Health and Disparities Path of Excellence (GHD) - a set of mentored co-curricular activities built around 16 competencies related to professional development and leadership skills to ameliorate health disparities in the United States and developing countries. Students reviewed the competencies in terms of: a) their ability to perform the identified competencies as they began GHD and b) the extent to which their future career would require these responsibilities. The ordinal response scale ranged from "Strongly Disagree" to "Strongly Agree." Wilcoxon's paired T-test compared individual students' rating of their current level of ability to the level that they anticipate their career will require, with significance set at p<.01
Summary of results: On most (11) of the 16 competencies, at least 50% of students indicated that the competencies were beyond their present ability level. For each competency, the Wilcoxon paired T-tests results indicate students perceived more need in their careers than they currently possess, at statistically significantly levels.
Conclusions: This study suggests congruence between student and program perceptions of the scope of practice required for GHD. The findings indicate students see the need for enhanced levels of skills in the careers they anticipate.
Take-home messages: Formulating and reflecting on competencies can guide curriculum in aligning learning experiences with students' emerging career goals.

2GG/9
Enhancing Healthcare Professional Training: A collaboration between the School of Medicine, University of St Andrews, UK and the College of Medicine (COM) Blantyre, Malawi

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Background: St Andrews is collaborating with College of Medicine (COM) Blantyre to assist the College with a major review of all its allied health professional undergraduate curricula. These changes are driven by the need to modernize these curricula and to maximize the efficiency of the input of the basic medical sciences to these programmes. The two medical schools have recently gone through a similar exercise for the undergraduate medical program at the COM.
Summary of work: As a result of two joint curriculum planning conferences in Blantyre, the COM has designed and is taking forward new degree programmes for Pharmacy, Physiotherapy, Medical Laboratory Sciences and is introducing a new B.Sc Honours in Biomedical Sciences. All COM academic staff responsible for these programmes met and considered a proposed common course structure model.
Summary of results: It was decided that new healthcare professional curricula be developed that will adhere to a plan using core integrated basic medical sciences courses in all the degree programmes and other specific courses tailored to the needs of the individual degree programmes. This will permit the achievement of the desired efficiencies in teaching and specific curriculum outcomes.
Conclusions: The harmonisation of degree programme structures and the use of common and specific integrated courses throughout all degree programmes can meet the needs of the COM for the review of its Allied Healthcare Training Programmes.
Take-home messages: Healthcare professional training can be enhanced and made more efficient by adopting common degree structures utilising common core and specific course options.

2GG/10
Reache North West, 10 years of supporting refugee healthcare professionals

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Background: Reache North West provides education and training for refugee and asylum seeking healthcare professionals

Summary of work: Reache North West is a unique hospital based unit that provides a variety of educational and training resources to help asylum seeking and refugee healthcare professionals enter work in their professional roles in the UK. Courses include; English language training, medical knowledge and skills training, safe and effective clinical communication skills, preparing for work in the UK, clinical reasoning, and employability skills. We also provide a range of supervised work placements to help transition into the UK workforce.

Summary of results: Over 140 refugee health care professionals have returned to their professional roles with many others finding alternative employment in healthcare. Reache North West has supported several short-term opportunities that have led to paid alternative careers.

Conclusions: Not only have we helped refugees gain employment in the UK but we have also helped refugees integrate into communities. Successful Refugee Healthcare Professionals (RHPs) give their communities renewed hope of integration and employment. We not only provide a valuable service for the RHPs but also the National Health Service, helping to meet local and national workforce demands at a fraction of the cost of usual medical training.

Take-home messages: Refugee healthcare professionals are a valuable resource to their host countries if given appropriate training and support.

2GG/11
'Medical educators on the move': experiences of international medical educators

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Background: Internationalisation is a key element of higher education (Enders & Teichler, 2005). In 2006, Harden set out a vision of "transnational" medical education, where international medical educators would teach groups of international students and institutions would establish strong cross-border collaborations for teaching and research (Harden 2006). Almost a decade after that vision where are we now?

Summary of work: An online survey on experiences as an international medical educator was conducted. Data

were analysed using TAMS Analyzer (qualitative) and SPSS19.0 (quantitative).

Summary of results: Data were collected from 89 participants from 29 different countries in all continents with an average international experience of 9.3 years. The main themes identified were consistent across age, gender and across different training locations.

Conclusions: Our results show that "transnational" medical education is still not the most predominant reality among international medical educators. Although educators are becoming more international, the student population remains local. These results will be discussed along with reasons for internationalisation, barriers and perceived advantages for both the students and the employers.

Take-home messages: Internationalization is perceived as very valuable if all involved (students, teachers and institutions) are prepared for the experience and to face challenges.

The reasons for where educators choose to work are multi-factorial, but consistent themes emerge regarding barriers and critical success factors independent of country and culture.

2GG/12
Higher interest in Global Health topics among students of the International Bachelor of Medicine

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Background: With increasing globalization, there is a great need for integration of Global Health (GH) in the medical curricula. We adopted the 21 proposed GH learning outcomes as formulated by Johnson et al. (Lancet, 2012) in an integrated country-based approach in the International Bachelor Medicine Groningen (IBMG) programme. In the standard (NL) Bachelor curriculum GH topics are not explicitly taught. We measured the interest in the GH learning outcomes among first year IBMG students as well as among those following the NL curriculum.

Summary of work: We evaluated students' interest in the 21 GH learning outcomes by questionnaire. These outcomes were measured on a 1-5 Likert scale (5: very interesting, 1: not interesting). We collected additional information on career plans.

Summary of results: Response rate was 92% for year 1 IBMG (n= 68) and 65 % for NL students (n= 233). The overall score of the 21 GH learning outcomes among the IBMG students (M= 3,83) was significantly above those among the NL students (M= 3,03) ($p < 0.001$). Amongst

IBMG students 17 % considers a career in Public Health compared to 3% of NL students.

Conclusions: Medical students within the IBMG programme are significantly more interested in the topics of the 21 proposed GH learning outcomes within their curriculum than those following the NL standard curriculum. The GH profile suits the students' interest in the IBMG programme which is in line with their increased career intentions for Public Health.

Take-home messages: The 21 GH learning outcomes fit well with the interests of the students starting in the IBMG programme.

2GG/13

A Rapid Intervention to Improve Somali Cultural Competency in Minnesota Medical Students

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Adeel Zubair (Mayo Clinic, Mayo Medical School, Rochester, United States)
James Newman (Mayo Clinic, Department of Internal Medicine, Rochester, United States)

Background: Cultural competency has been shown to improve the physician-patient relationship and promote positive health outcomes for patients in numerous studies, yet many U.S. medical schools do not incorporate formal cultural training into their curricula. Mayo Medical students have many opportunities to interact with Somali patients throughout their training due to the large Somali immigrant population in Rochester, MN. The purpose of this study is to determine medical student understanding of Somali culture, how comfortable students feel interacting with Somalis, and to understand how much students would learn from a culturally-immersive educational lunch meeting on Somali culture.

Summary of work: Forty-eight students completed a pre-survey at the start of the meeting, and students returned 2 months later to complete the same survey to assess student learning. Students enjoyed dishes native to Somali, learned how to communicate using basic Somali phrases, received a list of Somali recipes to try at home, and listened to a presentation from one of the Mayo Clinic translators native to Somalia. Students learned about the history of Somalia, major public health concerns, religious beliefs, and barriers to accessing care. The surveys assessed the knowledge, attitudes, and behaviors of the students towards the Somali population.

Summary of results: Pre-survey data demonstrated that most students had little prior knowledge of Somali culture, and 38 of 48 (79%) of survey participants said they believed their lack of knowledge of Somali culture might limit the quality of care they can provide. Additionally, 19 of 48 (40%) of survey participants said they felt uncomfortable treating Somali patients altogether.

Conclusions: Remainder of results to be gathered by late March.

SESSION 3: Simultaneous Sessions
Monday 26 August: 1045-1230

3A Symposium: What is excellence in education and can we measure it?
Location: Congress Hall, PCC

Trudie Roberts (University of Leeds, UK) (Chair)
David Wilkinson (The University of Queensland, Australia)
Sandy Cook (Duke-NUS, Singapore)
Liz Anderson (The Higher Education Academy, UK)
Khalid Bin Abdulrahman (Al-Imam University, Kingdom of Saudi Arabia)

Over the past decade there has been a move to recognise excellence in a wide range of domains. This symposium will look at how the concept of excellence can be applied to medical education. It will examine the case for looking at a form of quality assurance that goes beyond the concept of accreditation. It will explore criteria that might be used to define excellence in education and how these can be evaluated. Following opening presentations from a range of perspectives, participants will be invited to express their views on the subject.

3B Symposium: "Don't mention the 'd' word": Balancing living with dying in medical education and practice
Location: Meeting Hall I, PCC

Sarah Yardley (Keele University and Specialist Registrar in Palliative Medicine, West Midlands Deanery, UK)
Debbie Jaarsma (Academic Medical Centre, University of Amsterdam, the Netherlands)
Fedde Scheele (VU University Medical Centre, St Lucas Andreas Hospital, Amsterdam, the Netherlands)
Michiel Westerman (VU Medical Centre, Amsterdam, the Netherlands)
Esther Helmich (Academic Medical Centre, University of Amsterdam, the Netherlands)

Death and dying are an unavoidable part of medical practice. Despite changes in professional-patient interactions, students and doctors continue to report lack of competence and confidence when confronted with someone living with the reality of life-limiting illness. This symposium explores balancing patient-centred care with professional resilience when engaging with issues of life and death. Presenters will provide teaching and learning examples from practice as educators and clinicians in Internal Medicine, Obstetrics & Gynaecology, and Palliative Medicine. Ethical, legal and practical curriculum challenges will be discussed. Participants will develop ideas for workplace-based learning opportunities in the context of death and dying.

3C Short Communications: Staff/Faculty Development 2
Location: Panorama, PCC

3C/1
Enhancing Teaching Effectiveness: The Heidelberg Medical Faculty development program

Gerald Wibbecke (Heidelberg University, HeiCuMed, Im Neuenheimer Feld 155, Heidelberg 69120, Germany)
Martina Kadmon (Heidelberg University, Department for General, Visceral, and Transplantation Surgery, Heidelberg, Germany)

Background: Steinert et al. (2006) offered guidelines for the research of programs designed to enhance teaching effectiveness. Based on their suggestions, we performed a prospective longitudinal study to evaluate our faculty development intervention program. This intervention is intended to train medical teachers in modern teaching techniques, primarily focussing on the implementation of the principle of "constructive alignment" (Biggs & Tang, 2007) in courses and curriculum. Approximately 80 teachers complete this training every year. The participants in the program were asked to take part in our study.
Summary of work: The study consisted of self-assessment at the beginning and the end of the intervention (approximately a year apart), self-observation, and observation by a colleague and an expert during lessons. It included three intervention cohorts and a comparison group. The analysis focused primarily on different levels of outcome: Reaction, Learning, Behaviour, and Results. Additionally, students were asked by questionnaire to define good teaching from their perspective.
Summary of results: The data indicate that trained teachers make use of more varied didactic approaches, enhance their communication with the students especially in large-class situations, and develop a more student-centred approach to teaching.
Conclusions: The findings support both the notion that it is promising to equip medical teachers with teaching skills and the need to accompany training programs by multi-facetted evaluation instruments to monitor and reflect changes in teaching behaviour, while also considering the student perspective.
Take-home messages: Participants report satisfaction with the program and a change in attitudes and teaching behaviour, but it is still possible to increase the efficiency of the program.

3C/2 (13993)
Faculty development initiatives designed to improve teaching process in the Family Medicine course

Venija Cerovecki (University of Zagreb, School of Medicine, Department for Family Medicine, Rockefellerova 4, Salata 3, Zagreb 10000, Croatia)
Milica Katic (University of Zagreb, School of Medicine, Department for Family Medicine, Zagreb, Croatia)
Sanja Blazekovic Milakovic (University of Zagreb, School of Medicine, Department for Family Medicine, Croatia)
Zlata Ozvacic Adzic (University of Zagreb, School of Medicine, Department for Family Medicine, Zagreb, Croatia)

Background: During the final year of the 6-year undergraduate medical curriculum of School of Medicine, University of Zagreb, students spend 140 hours at family medicine course. During this course students spend 60 hours in theoretical education and 80 hours in selected family medicine practices. The teachers and trainers in selected family medicine practices are healthcare professionals involved in the teaching during the family medicine course.
Summary of work: The teachers and established trainers worked together and designed a two-day course in order to prepare healthcare professionals for teaching in the family medicine.
Summary of results: The course will be organized in two days. During the first day, the structure of the family medicine course as well as principles of development follow-up of the students will be presented. Activities in the second day will enable healthcare professionals for work based assessment (CbD, DOPS, Mini-CEX), designing problems and for mentoring the students in preparing the portfolio as a self-reflective tool.
Conclusions: Faculty development activities and initiatives have to assist faculty members and healthcare professionals involved in the teaching to fulfil their multiple roles as family physicians, teachers and researches. Faculty development programmes and initiatives must be relevant and adjusted to teachers' needs and interests. If the faculty development interventions cover the healthcare professionals teaching needs, participants will evaluate this activity as very useful for their professional development as teachers.
Take-home messages: Preparing healthcare professionals for teaching is an essential activity for the improvement of teaching effectiveness.

3C/3
MEDUSA: staff development made possible

Selma Omer (University of Southampton, Faculty of Medicine, Medical Education Development Unit (MEDU), B85, Life Sciences Building, Highfield Campus, Southampton SO17 1BJ, United Kingdom)
Sunhea Choi (University of Southampton, Faculty of Medicine, Southampton, United Kingdom)
Marcus Parry (University of Southampton, Faculty of Medicine, Southampton, United Kingdom)
Faith Hill (University of Southampton, Faculty of Medicine, Southampton, United Kingdom)

Background: Attending staff development training events can be difficult for busy university staff and clinicians. To address this and complement existing face-

to-face training, we developed an online training portal, MEDUSA (Medical Education Development Unit Staff-development Access), at the University of Southampton.
Summary of work: Based on Kolb's experiential learning cycle, each module was designed to facilitate interactive, reflective and flexible learning. Seven modules are currently available on: teaching practices (lectures, feedback, student assistantships); assessment (mini-CEX, OSCE); diversity; and transition to clinical learning. MEDUSA records data allowing users to manage their learning and the Faculty to keep records. To assess its effectiveness, evaluation components (profiles analysis, activity analysis and module evaluation) were built into MEDUSA.
Summary of results: Since March 2011, nearly 500 staff - both academic and clinical - completed MEDUSA modules. Take-up of face-to-face staff development during this time was unaffected, indicating that MEDUSA provided alternative opportunities for those unable to attend these events, Assessment and diversity modules were most highly used (368). Most completed one module (89.3%), reflecting varied training needs. Preliminary analysis shows that the modules were highly rated (n=160), on relevance (mean of 4.31 [1-5 point scale from very dissatisfied to very satisfied]), meeting learning needs (4.21), maintaining interest (4.26), interactivity (4.17) and easy navigation (4.23).
Conclusions: MEDUSA provided an interactive and flexible learning approach, increasing opportunities for staff development. Further study will explore user experience in-depth.
Take-home messages: Online staff training like MEDUSA can allow busy staff to access staff development at their own convenience and address their training needs.

3C/4
Use of 'Problem Based Learning' as a faculty development approach

Rahila Yasmeen (Riphah International University, 274,IIMCT Al Mizan Complex, Peshawar Road Rawalpindi, Islamabad 46000, Pakistan)

Background: To explore faculty experience about 'problem based learning' used as a FD approach, in understanding and applying the core concepts & issues in health professions education, through their views and opinions. It was a qualitative study i.e. 'phenomenology', explored how faculty experienced the 'problem based learning' as a strategy to teach them core concepts & issues in health professions education.
Summary of work: Total 16 faculty members from three batches of post graduate certificate course in Medical Education, participated in-depth, semi structured interviews at Riphah International University- Pakistan. Faculties were asked about their experiences with the PBL used to train them. The interviews were qualitatively analyzed using psychological phenomenology. The data verbatim transcribed, coded thematically, manually and finally conclusions are drawn based on the connections about its meaning personally and theoretically.

Summary of results: Results were in the form of a description of the faculty's lived experiences with the PBL. Findings indicated that faculty responded to the PBL as a very useful learning tool. Moreover, they experience that they not only understand the 'teaching skill' by solving the 'real teaching problem scenario' but they also understand the PBL process and facilitation skill as well and acquire the peer feedback and reflection skill.
Conclusions: This phenomenological study indicated that a well constructed PBL case, based on a common and real teaching problem scenario, can have a substantial effect on faculty/medical teacher's performance that helps in better learning transfer of teaching skill.
Take-home messages: PBL is effective faculty development approach.

3C/5
Awareness of "ethics" as an important training activity of CFD- Experience in Taiwan

Dena Hsin-Chen Hsin (China Medical University, Center for Faculty Development CFD, 91 Hsueh-Shih Rd, Taichung 40402, Taiwan)

Background: Rapid advancements in medicine make it essential that faculty in medical institutions and teaching hospitals should take realistic consensus-driven actions on the ethical issues of today's real world. Opportunities and incentives are needed to encourage faculty development and to generate the infusion of ethical thinking into their teaching and professional activities.
Summary of work: A series of three-level programs of Bioethics were held by the Center for the Faculty Development (CFD) at China Medical University, Taiwan in three consecutive years. This program was designed to help faculty matching for ethical maturity in medical profession. The distinct emphases in each level imply the need for diversity of methods in learning ethics. In general, we designed the program as a move from formal lectures to more small groups, learner-oriented and case-based interactions. There was a total of 529, 196 and 204 attendance for elementary, middle and advanced program respectively.
Summary of results: According to the feedback, most participants appreciate better interactive discussions in small group. The morale of the faculty has conspicuously been greatly enhanced by the program and the outcome may be addressed by the participants' commitment to be developed as a reflective practitioner.
Conclusions: With such an experience, we suggest bioethics learning as a regular program for faculty development in medical institutes.

3C/6
A positive learning experience with the course "Art of medical education": a qualitative study

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Neda Pjevac (Croatian Association for Medical Education, Medical School, University of Zagreb, Croatia)
Suncana Kukolja Taradi (Croatian Association for Medical Education, Medical School, University of Zagreb, Croatia)
Milan Taradi (Croatian Association for Medical Education, Medical School, University of Zagreb, Croatia)
Antun Smalcelj (Croatian Association for Medical Education, Medical School, University of Zagreb, Croatia)

Background: «The art of medical education» is the basic course for young and inexperienced medical teachers. The course was developed and delivered by the members of the Croatian Association for Medical Education. 220 teachers from the Medical School, University of Zagreb finished the course. A comprehensive evaluation, including focus group discussion, was performed after ten years of experience. We would like to present here the results of qualitative evaluation related to the participants' learning experiences.
Summary of work: Four topics have been discussed within the focus-groups: motivation for the course; positive learning experience during the course; impact on the everyday teaching and suggestions for the course improvement. Four focus groups, with 32 participants, were held. Discussions were audio-taped, transcribed and analysed using grounded theory.
Summary of results: Nine themes emerged important as positive learning experience during the course: 1) possibilities to exchange experiences with teachers and colleagues; 2) feedback of peers as a learning tool; 3) self-reflection as a method of learning; 4) learning as being learner; 5) learning from the teachers as a role model; 6) small-group as a learning tool; 7) task based learning; 8) handbook as a source for learning and 9) enthusiasm and positive atmosphere as a vehicle for learning.
Conclusions: The participants highly appreciated the applied adult learning principles and methods.
Take-home messages: Staff development programs should always be based on the respect to the learners as adult persons.

3C/7
Faculty development in veterinary education: the literature lacks published evidence and consistent terminology

Catriona Bell (University of Edinburgh, Royal (Dick) School of Veterinary Studies, Easter Bush Campus, Roslin, Midlothian EH25 9RG, United Kingdom)

Background: Faculty (or staff) development is a well recognised and important topic and discipline within medical education, with a number of peer-reviewed publications available in the literature. The importance of using evidence-informed approaches to design faculty development programmes for teaching and learning in veterinary education is equally relevant, but, to date, has received limited focus.
Summary of work: This work aimed to identify what evidence is available in the published literature regarding faculty development in veterinary education. The terms 'faculty development' and 'staff development' were used to search relevant databases including Pubmed, Medline and CAB abstracts to identify relevant peer reviewed publications.
Summary of results: Only three veterinary education publications were identified which included the term 'Faculty Development' in their title. A further two relevant papers were identified from the contents of their abstracts. Alternative terms such as 'staff development', 'professional development', and 'professional education' were also identified as alternative search terms in the veterinary education literature. Furthermore, a systematic review of faculty development in the medical education literature was found to use the additional terms 'in-service training', 'medical faculty', 'faculty training/development' and 'continuing medical education' for their literature search and also discussed 'instructional effectiveness' within the text.
Conclusions: The lack of publications regarding faculty development in veterinary education suggests that either: a) few faculty development initiatives are being implemented in veterinary schools, or b) few veterinary schools are publishing the work that they are undertaking on faculty development. This has resulted in a major gap in the literature, particularly when compared to other allied professions such as medicine.
Take-home messages: There is currently a major lack of available published literature about faculty development programmes in veterinary education, and the ability to identify relevant publications is further hampered by the inconsistency in terminology used by authors.

3D Short Communications: Basic Science 2: Anatomy

Location: Meeting Hall IV, PCC

3D/1

A study to explore medical students' perceptions of the style and adequacy of anatomy teaching in 17 British universities

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M U Halim (University of Oxford, Medical Sciences Division, Oxford, United Kingdom)
Akif Malik (University of Oxford, Medical Sciences Division, Oxford, United Kingdom)

Background: Increasingly, there has been a trend towards reducing the teaching time dedicated to anatomy in medical schools despite an almost universal belief regarding its importance.
Summary of work: The aim was to assess British medical students' perceptions about anatomy teaching and whether they feel it will prepare them for clinical practice. An online questionnaire-based study was sent to all British medical schools.
Summary of results: 912 current medical students from 17 universities were recruited. The M:F ratio was 35:65. 97.7% agreed or strongly agreed that anatomy is an important aspect of medical education. 19.2% believed they did not receive sufficient teaching. Hours of anatomy teaching strongly correlated with belief that there was i) sufficient teaching (r=0.92) ii) sufficient preparedness for clinical practice (r=0.89). Using a Likert scale, students taught by dissection instead of prosection (60.9% vs. 39.1%) were more confident of their future clinical competency (3.90±0.04 vs. 3.66±0.05, p<0.0001). 71.3% believed that anatomy should be taught by dissection.
Conclusions: There was almost universal agreement that anatomy is an important discipline. Interestingly, only a minority of participants felt they did not currently receive sufficient teaching. The majority preferred teaching via dissection. Those with more teaching and those taught by dissection were more confident that it would ensure greater clinical competency. In summary, anatomy remains an important aspect of medical education and greater teaching, particularly via dissection, increases confidence about future clinical competency.
Take-home messages: Almost all medical students believe anatomy is important. It should continue to form a substantial part of the undergraduate syllabus. Teaching via dissection should be preferred.

3D/2

Evaluation of peer coaching and linked novel assessment strategy in physiotherapy education

Catherine Moore (University of Nottingham, Division of Physiotherapy Education, Clinical Sciences Building, Nottingham City Hospital, Nottingham NG5 1PB, United Kingdom)
Sarah Westwater-Wood (University of Nottingham, Division of Physiotherapy Education, Nottingham, United Kingdom)
Roger Kerry (University of Nottingham, Division of Physiotherapy Education, Nottingham, United Kingdom)

Background: Ladyshewsky (2006) defined Peer coaching (PC) as: "a method whereby individuals with equal status actively help and support each other in learning tasks". Critical theorists have acknowledged peer coaching, and the group responsibility it provides, as a potential driver to deeper learning. PC group factors of sharing and responsibility might be utilised in assessment processes.
Summary of work: To evaluate introduction of PC and a linked novel assessment strategy in undergraduate education. Undergraduate physiotherapy students (N=280, 2005–2009 intakes) studying Neuromusculoskeletal Studies were allocated to PC model learning sets (LS) (3 – 5 per set). Monthly LS anatomy spot assessments were implemented.
Summary of results: Pre-post module marks were statistically significant (p<0.05, mean 56.49% SD 8.39: 63.32% SD 10.73 respectively) with a mean increase of 7.03% (CI 5.05-9.01).
A questionnaire (5-item Likert scaling and free text) to assess student satisfaction found 70% enjoyed the process, 64% felt learning was supported and 62% thought LS were helpful to studying. Main themes identified benefits of social interaction, social support and team-working. Limitations were social loafing, restriction in co-worker choice and peer member distraction.
Conclusions: Qualitative themes relate well to critical theory, with key themes being social in nature. This concurs with others research. The assessment marks comparison demonstrates a potential short term positive impact on anatomical knowledge. Future research should investigate which factor might be most influential in determining academic improvement PC or the novel assessment.
Take-home messages: The PC strategy and linked novel assessment encouraged greater anatomical knowledge.

3D/3

Students learn more from performing a clay-modeling exercise than from viewing the same exercise on video

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Marc A.T.M. Vorstenbosch (Radboud University Nijmegen Medical Centre, Department of Anatomy, Nijmegen, Netherlands)

Background: Because of budget reasons, teachers of anatomy are challenged to invent new methods for learning anatomy that can be taught outside the dissection room. Two of these methods used more and more are clay-modeling and video-viewing. From these two video-viewing is easier to apply and cheaper, but does this method reach the same learning gain as clay-modeling?

Summary of work: We copy-pasted a published clay-modeling exercise of deep brain structures and also video-taped the construction of such a clay-model, during which the clay-model was slowly turned from different viewpoints during each stage in the construction. Groups of about 30 students either performed the clay-model exercise or watched the video, consecutively. Both tasks lasted 20 minutes. All students took a pretest and the posttest. All tests had the same format: 10 MC's, 10 EMQ's, and 15 fill-in names. T-tests were used for analysis.

Summary of results: In total 209 students performed the clay-model exercise and 190 watched the video. The clay-modeling group scored 3.29(1.49) and 5.37(1.40) and the video-viewing group 3.17 (1.35) and 5.00 (1.57), for the pretest and posttest respectively. There was no difference on the pretest between the two groups (p=0.40), but a significant difference on the posttest was found (p=0.012).

Conclusions: The students who clay-modeled outperformed the video-viewers in learning gain.

Take-home messages: Hands-on exercises are preferred as vehicles for learning anatomy compared to videos.

3D/4
Randomised crossover study of task-based vs didactics for teaching medical students anatomy in laboratory classes

Samy A Azer (King Saud University, College of Medicine, Medical Education, P O Box 2925, Riyadh 11461, Saudi Arabia)

Background: This study was set up to investigate which approach for teaching anatomy in laboratory classes is effective and preferred by students.

Summary of work: In a crossover study, second-year medical students were randomised to task-based (T-B) or didactic (D) learning. The T-B group (45 students were allocated into small groups of 5) completed written tasks on cranial nerves and used pre-dissected specimens, anatomy atlases and plastinated models as resources and the D group (46 students were allocated into small groups of 5) learned via traditional teaching conducted by tutors using pre-dissected specimens. The learning in both groups was measured by means of pretest-posttest MCQs. During a second instruction session, the students crossed over and were taught the cerebellum and balance system using the opposite modality and a similar assessment was conducted. Inn

both sessions, students in both groups were asked at the end of the session to rate satisfaction and preferred teaching approaches using a 5-point Likert questionnaire.

Summary of results: Using paired t-test, results showed statistically significant improvement in posttest scores compared to pretest scores in both groups, with p values ranging from 0.001 to <0.001. No significant differences were observed in the posttest means between the two learning approaches. The questionnaire showed that students enjoyed learning through the tasks but favoured a combination of task-based learning followed by feedback from the tutors on tasks completed.

Conclusions: Both approaches are equally useful in teaching anatomy. However, students favoured the use of a combination of the two approaches in anatomy laboratory classes.

Take-home messages: Task-based learning followed by tutor's discussion and feedback is ideal for teaching anatomy than traditional/didactic learning

3D/5
How does presenting content in context increase acquisition, retention and recall of knowledge? An empirical study in anatomy education

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Marc ATM Vorstenbosch (Radboud University Medical Center Nijmegen, Department of Anatomy, Nijmegen, Netherlands)
Jan GM Kooloos (Radboud University Medical Center Nijmegen, Department of Anatomy, Nijmegen, Netherlands)
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Background: Teaching in context is said to improve learning: increasing acquisition, retention and recall of knowledge. We studied the attribution of the cognitive dimension of the context model (Koens et al. 2005), which states that superior memory develops because context activates prior knowledge and provides retrieval cues. Semantic networks are knowledge networks as stored in one's memory. No two persons have exactly the same knowledge about a topic as semantic networks are based on individual experiences. Therefore, we hypothesized that characteristics of the context, defined as students' familiarity with the context and relevance of context to content, may influence prior knowledge activation and retrieval cue storage, and thus the quality of semantic networks (superior memory).

Summary of work: Learning task is dissection room session on 4 musculoskeletal subjects; a control group

taught without context (1) and experimental groups being taught with relevant familiar (2), relevant unfamiliar (3), irrelevant familiar (4) or irrelevant unfamiliar context (5). Pre-, post- & retention tests are mcq's & free recall task.

Summary of results: Students' results in groups 3, 4 & 5 are possibly mediated by 'novelty' or 'nonsense effect': interesting unfamiliar and unusual irrelevant context also increases acquisition, retention and recall of knowledge.

Conclusions: Creating a context that actually improves learning is not as straightforward as often thought, as characteristics of the context may influence the outcomes to a substantial extend.

Take-home messages: We do not yet fully understand all the (im)possibilities of teaching (anatomy) in context and further research is therefore necessary.

3E Research Papers: The Teacher and Personal Development
Location: Meeting Hall V, PCC

3E/1
Trialling Parameters for Evaluation of Faculty Development (FD)

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David Davies (University of Warwick, Warwick Medical School, Coventry, United Kingdom)
Jill Thistlethwaite (The University of Queensland, School of Medicine, Herston, Queensland, Australia)
Ed Peile (University of Warwick, Warwick Medical School, Coventry, United Kingdom)

Introduction: The extent, scope and views of FD activities in UK medical schools remains underexplored. This study on Faculty Development (FD) in UK medical schools focused on developing parameters to evaluate FD using realistic evaluation as the theoretical framework (Pawson and Tilley, 1997). This framework is used to address the question 'What are participants' views of the determinants of effective faculty development activities for medical educators?'
Methods: Based on a previous pilot, three key parameters were found to be the key factors influencing learning on a FD activity; motivation, engagement and perception. This was further tested by observation and interviews of 33 participants attending a FD course at Warwick Medical School between Jan/April 2012. A 5-point engagement scale based on three descriptors (behavioural, cognitive and emotional) was used to score participants' engagement during the session. Participants were interviewed to explore reasons for attendance, course relevance and usefulness. The interviews, observations and engagement scores were used in developing constructs for the three parameters.
Results: A two-axis construct was derived for each parameter; for motivation it was external/internal vs. individualistic/altruistic. Individualistic (30) was the main motivation rather than altruistic (3) with similar external (18) and internal (15) motives. This was irrespective of stage of career, funding source or previous teaching course attendance. Engagement construct was informative/repetitive vs. interesting/intense. 31 participants found the sessions interesting/informative with the facilitating context being the multimodal, interactive approach. Two found the sessions repetitive/intense. Perception construct was useful/unproductive vs. relevant/irrelevant. Most participants (29) felt that FD on teaching was useful/relevant as it gave them the confidence to practice various teaching methods. Four participants felt some of the sessions were irrelevant / unproductive.
Discussion and Conclusion: There was good correlation between the three data sources used in deriving the constructs for the three parameters. Motivation, engagement and perception and their underlying mechanisms are key to participants' learning. Individual motivation appears to be the key driver for participation in FD rather than altruistic motivation. External and internal factors are finely balanced and merit further exploration. A multimodal, interactive approach is the key to engagement, and without engagement there is no deep learning as engagement is the bridge between learners and their learning target (Hargreaves, 2006). Observation data supported the participant perceptions of increased confidence in teaching. Engagement was the key mechanism and the activating context was the reflective process following experiential practice during the course and the post-course assessment (peer observation).
This study was important for trialling metrics of motivation, engagement and perception, across two cohorts of clinicians attending a FD course. It helps to understand what works for who, in what context and why. This is an important evaluative method for FD developers.
References: Hargreaves, D. (2006) Personalising Learning 6: the final gateway: school design and organisation London: Specialist Schools Trust
Pawson R., & Tilley N. (1997). Realistic Evaluation. London: Sage.

3E/2
Does clinician teachers' high work engagement result in better teaching performance?

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OA Arah (UCLA, Public Health, Los Angeles, United States)
MJ Heineman (AMC, Directory Board, Amsterdam, Netherlands)
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Introduction: Adequate supervision in residency training benefits patient outcomes of residents (1), which affirms the significance of clinician teachers' high teaching performance. Since research demonstrated that work engagement is positively related to job performance in general (2), we were interested in whether work engagement also would result in high teaching performance of clinician teachers specifically. As clinician teachers typically perform their work in the roles of physicians and teachers, this study (i) explored the levels of clinician teachers' work engagement in both their roles as physicians and teachers and (ii) investigated the relationship of work engagement in these roles with their teaching performance.
Methods: A cross-sectional, multicenter survey was conducted at 61 residency programs, covering 25 medical specialties, in two academic and six non-academic medical centres in the Netherlands. Teaching performance was measured with the validated System for Evaluation of Teaching Qualities (SETQ), consisting of clinician teachers' self- and resident evaluations on 21 items, using a 5-point scale. We used the validated, 9-item Utrecht Work Engagement Scale (UWES-9) to

measure clinician teachers' work engagement on a 7-point scale and applied it to both the physician and teacher role. Statistical analysis was conducted with SPSS 20.0, using a paired sample T-Test to explore clinician teachers' levels of work engagement in both their roles. Next, we performed multilevel regression analyses to study associations between work engagement in both roles and teaching performance.

Results: In total, 627 (78%) clinician teachers self-evaluated and 549 (68%) residents filled out 4305 evaluations. Clinician teachers reported significantly higher work engagement in their roles as physicians than in their roles as teachers (mean difference = 0.97, p < .01). Clinician teachers' work engagement as teacher was significantly related to teaching performance (β =.31, p <.01), while work engagement as physician was not (β = -.05, p > .05).

Discussion and Conclusion: Clinician teachers are less engaged as teachers than as physicians, while typically clinician teachers with high work engagement as teacher are perceived as better supervisors by residents. This discrepancy leaves room for improvement, meaning that higher teaching performance of clinician teachers could be achieved by improving their work engagement as teacher. In general, job resources, such as job autonomy and performance feedback, benefit work engagement (3). Increasing these factors in practice may facilitate the increase of work engagement and ultimately, teaching performance. Future research will have to show which job resources could be adjusted in the specific context of clinician teachers.

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3E/3
Exploring talent development environments – inspirations to medical education at doctoral level

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Introduction: Doctoral students may be considered some of our most talented students. In order to maintain high quality in doctoral education we should be aware of optimizing the talent development environment in which the students develop their competencies. In this paper we explore the features of a successful talent development environment in Danish doctoral education. Talent development is an extensive and well-established research field. So far, research within this field has mainly focused on sport and other artistic professions and to a minor degree on academic performance. In addition, the focus has been on cognitive skills of individual talents and to a minor degree on institutional conditions and constraints within talent development environments. However, recent studies on talent development in sport recognize 'talent' as a social construction (1) and institutional and environmental features playing a decisive role in talent development (2). Our research question is: do concepts and models for talent development environments in sport apply to medical education at doctoral level? Considering the uniqueness of the two domains (they refer to different overall social fields: education and sport), we presume that they are comparable because they may share some characteristics of successful talent development environments.

Methods: Based on an ecological approach to talent development environments (3) we carried out a pilot case study including field work (10 days of observation) and qualitative interviews with 6 participants (4 doctoral students and 2 supervisors). The case study took place at The Department of Hepatology and Gastroenterology, Aarhus University Hospital in Denmark from December 2012-March 2013. In the analysis of data we use Schein's theory of organizational culture (4) and suggest that a thorough understanding of talent development environments include analysis of the context-specific culture and its effect on the dispositions and behaviours of the talents.

Results: The preliminary results reveals that the talent development environment in this case study and those in sport share a number of common features: an elitist spirit as a way of ascribing meaning to principal activities, a working milieu characterized by continual high-performance achievements, training groups with supportive relationships, proximal role models, and a strong and coherent organization culture.

Discussion and Conclusion: This is the first study in Denmark to explore doctoral students' working environments as talent development environments. The results suggest practical implications for fostering and culturing talent development environments in medical education at doctoral level.

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3E/4
Evidence of the development of skills in critical reflective writing, in teachers in a science discipline, through use of the "patchwork text" approach

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Introduction: The concepts of 'reflection' and 'reflective practice' are essential for the practising teacher (Schön 1983) and are used extensively in professional development of teachers (Hatton & Smith 1995). The patchwork text approach (Scoggins & Winter 1999; Winter 2003) involves a series of short reflective pieces, each receiving feedback, culminating in an integrated essay, which is, summatively assessed. This developmental approach is based on students writing patchwork texts at regular intervals and the tutors giving feedback at individual level. Its objective is to achieve deeper reflection, and it is emerging as a popular form of learning and assessment for developing integrated understanding and critical self-analysis (Dalrymple & Smith 2008).

The main research question in this study is whether patchwork text can enhance the quality of reflective writing in a postgraduate teacher development programme.

Methods: The PG Certificate in Veterinary Education at the Royal Veterinary College uses the patchwork text approach as one of the main assessment methods. Students submit a "patch" at the end of each of five units in the module: Student Learning (SL), Teaching Methods (TM), Integrated Curriculum (IC), Assessment and Feedback (AF) and a free choice of theme (FC). We analysed the quality of reflective writing in 103 formative essays (800-1000 words each) and 20 integrated essays (2500 words each), from 20 students using criteria developed from those of Hatton & Smith (1994), to identify four levels: descriptive writing, descriptive reflection, dialogic reflection and critical reflection. The word count for each level was recorded to quantify the reflections and a reflective score was calculated for each student.

Results: Students had higher aggregate reflection levels in patches related to SL, TM and FC compared to either AF or IC. The patches related to IC obtained the lowest mean scores. The summative, integrative essays received the highest score. The progress through the formative patches of the five individuals who received the highest reflective scores in the summative, integrative essay (top quartile) was compared with the progress of the five individuals who received the lowest scores in the final essay (bottom quartile), by comparing the mean reflective score for their first two patches (SL and TM) with the mean reflective score for the last two (AF and FC). Four out of the five top scoring participants in the summative, integrative essay showed an improvement in their reflective writing between the early and the later essays. In contrast, four out of the five low scoring participants gained lower reflective scores in their last two pieces compared to their first two.

Discussion and Conclusion: The study provides evidence that the quality of reflective writing can be enhanced through the regular, iterative process of reflective writing, which is supported by formative tutor feedback, particularly where the unit deals with a familiar area for the participants (SL, TM, FC), as opposed to one in which they have less experience. Ultimately, this provides evidence that the patchwork text is a suitable formative/summative assessment method for teacher development in the healthcare professions.

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3E/5
Evaluation of a pilot program aimed at mobilizing a new generation of physicians in management tasks

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Introduction: Medical schools often fill their administrative positions for academic and direction needs with faculty members highly skilled in academic fields. However, it is difficult for medical schools to fill the basic needs of academic organisation, and then prepare people for higher positions. Trying to develop those chosen for higher positions (physicians identified as the growing generation of medical leaders), medical schools offer them a plethora of existing training opportunities in the areas of management and leadership. But these initiatives lead to mitigated success. It is therefore necessary to try to understand the underlying causes of this mitigated success. An exploratory research study conducted in 2011 with seven experienced family physicians who occupy or have occupied various management positions, has helped to formulate an hypothesis: for them, there was a considerable difference between their beliefs and representations and the realities that awaited them in management positions. Indeed, the results showed that the majority of these professionals had, and sometimes still have, difficulty in accurately estimating both the management skills required and the abilities and expertise that they actually have, in order to assume their management positions. Therefore, a training program which aims for greater clarity with respect to their chosen career path, would be an essential preliminary step for the mobilization of these physicians. Consequently, a pilot training program of five days spread over a year was developed. This evaluative research tried to verify the following hypothesis: H1: "After five days of a pilot training program, participants will be more aware about their career path aims, about their management skills and abilities, about the management skills, abilities and training required and available, than before the program".

Methods: This evaluative research study used a mixed qualitative and quantitative methodology. The conceptual framework was based on the Johari window model. The quantitative analysis used a face validated questionnaire (self-evaluation of their own competencies and of their beliefs on their control on the development of these competencies) completed by the participants before and after the training, and some projects completed during the training. Repeated measures ANOVA have been calculated using Stata 12. The qualitative analysis consisted of thematic analyses of a focus group held with the participants at the end of the training, observation checklists, and some projects completed during the training. These thematic analyses were conducted using Atlas TI.

Results: Whether in terms of the management skills and abilities required, or in terms of their own knowledge, skills and expertise, the program participants reported the extent of the awareness that the pilot program has enabled them to obtain. Repeated-measures ANOVA showed a statistically significative difference (p<0.03) between their self-perceptions before and after the pilot program.

Discussion and Conclusion: The results validate the hypothesis H1. The results also show that the pilot program has allowed these implicated doctors to more clearly discern what they want and do not want to do in their careers. In doing so, their training choices and their potential involvement in leadership positions should become much more deliberate and coherent.

3F Short Communications: Assessment: OSCE 2 – Implementation

Location: Chamber Hall, PCC

3F/1
Using Tablets for OSCE Exams to Reduce Errors and Optimize Documentation

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Background: Objective Structured Clinical Examination (OSCE) is a form of performance-based testing used to measure candidates' clinical competence. Paper-based checklists are widely used for evaluation of the candidates as they go through a series of stations in which they e.g. treat standardized patients. Therefore a large amount of paper is needed and the results have to be summed over all stations manually. The International Consortium for Assessment Networks (ICAN) is a non-profit umbrella organization for assessment alliances with different interests and focuses. 48 schools, boards and councils in 6 countries actually using a common platform for preparation, exchange, implementation and evaluation of examinations: the ItemManagementSystem (IMS).
Summary of work: To improve the workflow ICAN developed an app, which represents OSCE-stations (stored in IMS) on tablets. QR codes can be used to identify the right stations and the candidates. Several ways of entering comments about the student's judgment are supported: virtual keyboard, finger/pencil, predefined text phrases and voice-recording. After each evaluation a screenshot is automatically stored for neutral documentation. The results could be exported to IMS for analysis or printed via PDF.
Summary of results: Several partners are using the app since 2012, reporting an easier, enhanced and smoother workflow. The results will be presented in this session.
Conclusions: The usage of tablets eliminates the media gap between designing and performing the exam. It is greatly accepted and offers a transparent documentation which additionally gains more legal certainty.

Take-home messages: Using tablets for OSCE exams the time consumption, the amount of errors and paper can be highly reduced.

3F/2
The use of OSCEs to assess communication skills in undergraduate medical students: A systematic review of the published literature

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Background: Assessment of communication skills (CS) is an integral component of modern undergraduate assessment. We report a systematic review of the literature pertaining to the use of OSCEs to assess CS, with a view to comparing assessment methodologies.
Summary of work: Research papers describing assessment of medical student CS using OSCEs were identified from Pubmed, Embase, PsycINFO, and the ProQuest Education Databases up to 2012. Studies that did not report empirical validity or reliability values for the CS assessment checklists used, were excluded. Data was extracted by three independent raters. The level of agreement between raters was calculated with respect to 27 domains of CS using Intra Class Correlation Coefficients (ICC).
Summary of results: Of 34 included studies, four reported use of international agreed standards. Overall, rater agreement for reliability and validity of CS was 0.94. Papers were found to focus on generic CS, history taking, doctor-patient communication, interviewing, negotiating treatment, information giving, empathy and 18 sub-domains (ICC -0.12 - 1). Where standardized patients were involved in rating students, they focused mainly on generic CS (31%). Regarding validity and reliability of the different measures used, agreement between raters was 0.44.
Conclusions: Heterogeneity in the assessment of communication skills by OSCEs makes comparison of student competence across institutions or different OSCE settings difficult. Our review demonstrates that studies differ in their use of terminology, in what they report, and that they frequently do not use standardized measurement instruments.
Take-home messages: We propose that universal adoption of a standardized CS measurement instrument would allow comparison of student competence across institutions and OSCE settings.

3F/3
Developing an OSCE curriculum to assess communication skills of residents

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Background: An Objective Structured Clinical Exam (OSCE) is a performance-based clinical skills assessment tool. As our institution is in the midst of a transition to competency-based education, there was a need to assess residents' communication skills in a standardized setting. We developed an OSCE curriculum to serve as a formative assessment tool targeting communication skills, ethics and professionalism based on the six ACGME core competencies.
Summary of work: We developed a 12 case two-year Standardized Patient (SP) based curriculum for the formative assessment of internal medicine residents. The blueprint addresses core communication topics appropriate to our setting. We created a unified checklist based on the Kalamazoo consensus statement with unique descriptors/scoring rubrics for each case. The cases were piloted to PGY4 residents and efforts to standardize SP scoring ware made through training activities. 66 residents participated in the first OSCE encounter (3 cases each). Residents were assessed by the SPs and completed a self-assessment. Following a debriefing session by the SP, they completed an evaluation on the OSCE encounter.
Summary of results: The resident survey indicated that they found the encounters to be practical, the feedback to be useful, and overall a good educational experience. Further formative feedback was incorporated into the residents' midyear evaluation.
Conclusions: The current curriculum has been a successful tool for formative assessment and can be further validated and expanded to be used for summative purposes in the future.
Take-home messages: Our OSCE curriculum for communications skills assessment is practical, adaptable and transferrable, and can be done on a small scale and in poor resource setting.

3F/4 (14213)
Brief Mindfulness Meditation (BMM) during OSCE to reduce stress and improve performance of medical students

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Background: In this era, students may find learning medicine stressful. Mindfulness meditation has been adopted to treat patients with a variety of physical and psychological conditions. Brief mindfulness meditation (BMM) improved the learning experiences. Application of BMM multimedia might reduce stress and improve medical students' inner performance during OSCE.
Summary of work: 24 5th year medical students were enrolled during 12 weeks in the medicine department. The students were randomized into 2 groups (n= 12) of each BMM group and control. OSCE was validated for equal level of difficulty in both groups. Outcomes measurement included in pre and post test OSCE score, sympathetic activity by pulse rate, pulse rate variability and self rating anxiety stress score (SRAS).
Summary of results: The pulse rate in BMM group was lower than in control group (86.50 vs 98.17, p=0.26). The pulse rate variability in each student decreased in BMM group but with no statistical significance (p=0.31 vs 0.26). BMM group improved OSCE score as compared to the control but with no statistical significance (p=0.05). SRAS in BMM group was lower than in control group (4.50 vs 6.50, p=0.01). Moreover each BMM student reported with decreased SRAS score significantly (p=0.002 vs 1.00).
Conclusions: BMM decreased stress and anxiety by SRAS during OSCE, significantly. Moreover BMM tended to reduce pulse rate response and variability and improve OSCE score as compared to the control group.
Take-home messages: BMM reduced stress, anxiety and might improve the efficiency in medical learning experience.

3F/5
Listen to the examiner: electronic audio feedback after OSCEs

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Background: Summative OSCEs gather much data about candidates, but students often receive little feedback to enable them to improve their performance. Electronic audio feedback has shown promise in other educational areas. We aimed to investigate its efficacy as a feedback method in OSCEs.

Summary of work: An electronic OSCE system was designed, comprising (1) an app for iPads allowing examiners to mark in the key consultation skill domains, provide "tick-box" feedback identifying strengths and difficulties, and record voice feedback; (2) a feedback website giving students the opportunity to view / listen in multiple ways to all the feedback captured and compare themselves to the cohort average. Efficacy of the audio feedback was investigated, using focus groups with students and questionnaires with both examiners and students.

Summary of results: Student found the feedback significantly improved, with 71% reporting receiving detailed comments on their work, compared with 30% in the previous year's cohort. They valued the highly personalised, relevant nature of the audio feedback, found it much more useful than written feedback and wanted it applied to workplace learning. Examiners gave audio feedback to all students in 89% cases. Although many found the method easy, lack of time was a factor.

Conclusions: Electronic audio feedback provides immediate, personalised and relevant formative feedback to students after a summative OSCE provided enough time is allocated to the process. This method can be transferred to the workplace.

Take-home messages: OSCE organisers should harness the opportunities offered by new technology to give students more feedback.

3F/6
Blueprinting Clerkship OSCEs for Better Data

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Background: Medical educators use objective structured clinical evaluations (OSCEs) for assessment. OSCE stations can test integrated skills otherwise difficult to evaluate. Aggregating OSCE data to enable analysis of learner, clerkship and curricular outcomes is limited by station design and case specificity challenges. Strengthening the conclusions possible from OSCE data is desirable in view of their cost.

Summary of work: We blueprinted a set of formative 6-station OSCEs for 5 core clerkships. Each OSCE tests cultural and procedural competencies, use of evidence,

team behaviors, receptivity to feedback and personal learning planning. Each station enables students to practice under direct supervision and receive immediate feedback.

Summary of results: Participant evaluations are positive; obtaining immediate feedback after each station and team-challenge scenarios have been very highly rated. Blueprint-driven data is aggregated across competency and clerkship to elucidate clerkship strengths and weaknesses with respect to cultural competency, procedural skills, use of evidence in patient care, team skills, and receptivity to feedback.

Conclusions: Our blueprint guided the design of a coherent set of clerkship assessments which provide a large data set on important student, clerkship, and clinical curriculum outcomes. Blueprinting simplified this challenging process. Developing clerkship OSCE stations based on a blueprint of desired competencies has enabled the aggregation of performance data and minimized case specificity challenges. Administration, faculty and students have reacted positively to the process and the product of this effort.

Take-home messages: Blueprinting a set of clerkship assessments can provide helpful structure and better data on important outcomes for institutional use.

3G Short Communications: Curriculum: Hidden/Electives

Location: Conference Hall, PCC

3G/1

Uncovering the Hidden Curriculum: Qualitative Analysis of Trainee and Staff Perceptions of Medical Training

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Background: The hidden curriculum refers to learning in response to unarticulated processes and constraints which fall outside the formal medical education curriculum. Although this has been identified across Canadian medical schools as an item requiring attention, it remains largely unknown to teachers and learners. This pilot study sought to assess the current state of knowledge and perceptions of the hidden curriculum among University of Ottawa learners and faculty.
Summary of work: Focus group interviews were held with undergraduate and postgraduate learners and faculty to explore themes. Qualitative analysis was conducted using a grounded theory approach.
Summary of results: Participants reflected on their own teaching and learning experiences and highlighted several key interconnected themes related to the presence of the hidden curriculum in medical training and clinical practice. These included the following: a) the privileging of some specialties over others; b) the reinforcement of hierarchies within medicine; and c) the propagation of a culture of tolerance towards unprofessional behaviours. Participants also acknowledged the importance of role modeling in the development of professional identities and discussed the deterioration in idealism that occurs during transitional stages in medicine.
Conclusions: Key themes regarding hidden curricular learning emerge and overlap between teachers and learners. Further study is required to explore hidden learning in a multidisciplinary team environment as well as solutions to minimize negative learning experiences.
Take-home messages: Educators must be aware that learning occurs outside the formal curriculum which significantly shapes physician professional behaviour. Strategies need to be developed to effect optimal learning outcomes from these experiences.

3G/2

Keep it in Hiding: studying the hidden curriculum and lessons learned about research that challenges institutions

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Background: Prompted by a Canadian report on medical education suggesting that the curriculum as delivered often denigrates family physicians and certain groups of patients I surveyed a random sample of students at 3 Canadian medical schools.
Summary of work: Students wrote about teachers who marginalized individuals and groups, and their reactions to this. An unexpected barrier to doing this research involved receiving ethics approval to question students about their education.
Summary of results: Using qualitative methods, I identified the following themes from student narratives: discrimination, the insertion of preceptors' values into teaching, stereotyping by group affiliation, disrespect for colleagues and women in some specialties. No data reporting for individual schools was allowed. Students' responses to comments that startled them ranged from confusion, to self-doubt, dissociation, and transformation of personal values to fit those of the profession. Schools responded with silence.
Conclusions: Despite an avowed adult education model we take a parental approach to our students. Our scientific teaching is laced with values, some of which contradict institutional ideals. Recognizing that medical science cannot be separated from the beliefs of teachers and practitioners we might consider acknowledging and discussing these beliefs rather than pretending they don't exist.
Take-home messages: The hidden curriculum, delivered by individual teachers, is unmasked for students when values conveyed clash with their own. Learners then grapple with transforming themselves so that they "fit in" to the profession. Institutional interest seems to lie in turning a "blind eye" to the hidden curriculum.

3G/3

Transitioning to a 'Social Practice' Mastery Mindset in Professional Development

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Background: There is growing appreciation of the need to prepare physicians for diversified institutional and community settings. The approach to education required to meet this diversity, demands pedagogies that assume complexity and mastery as their starting point. Literacy educators have worked through a similar experience.
Summary of work: 'Autonomous models' of literacy, founded on the premise that literacy is the acquisition and use of a set of technical skills, have historically

dominated educational practice. Problems are understood in 'deficit' terms, leading to increased training and assessment of skills as solutions. In contrast, 'ideological models' focus on social contexts; solutions attend to how practices are embedded within the broader social milieu and bound to other structures and institutions. A narrative method of 'scenario building' was used to explore pedagogical discussions in medical education around problem-based learning, evidence-based medicine, communication skills and 'point-of-care' informatics.

Summary of results: A comparative analysis of theoretical tensions in all four scenarios revealed that an ideological discourse exists surrounding desired goals, but is in tension with accountability systems that privilege autonomous approaches. The literature suggests that the ideological potential of the approaches reviewed are inhibited by solutions produce from an autonomous mindset.

Conclusions: In the areas reviewed, professional development, institutional and assessment practices have not kept pace with the educational contexts they aim to create.

Take-home messages: In order to transition to a social practice 'mastery' mindset, a theoretical shift is required to create the socio-cultural and institutional conditions in which ideological models of practice can flourish, and physicians can be better prepared to meet the demands they face.

3G/4
When to say 'no' - challenges facing students asked to work outside of their comfort, qualification level and/or expertise on Elective Placement

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Background: Our remit to protect patients is obvious. For students learning/working away from 'home' safeguarding processes are (often) unclear. A concern is equipping students for exposure to - and response to – uncomfortable/unfamiliar requests, where their comfort/safety, or that of the patient, may be compromised, eg when a student is asked to do something not be permitted in their own environment. This requires legal/ethical/moral reasoning. Additionally, students face the challenge of communicating response.

Summary of work: Questionnaire data-collection to capture student experiences of working outside normally accepted parameters. Questions went beyond known adverse events (needlestick injury/illness/crime) to probe what students were asked to participate in.

Summary of results: Sample - 228 students from Birmingham and Dundee. 2013 will include a second cohort. 50% reported being asked to do something "not

permissible" in their home institution. 25% were asked to do something they felt "uncomfortable" with, often an invasive clinical task. Half of those asked to do something not permissible in the UK were "comfortable". 45% felt it more acceptable to bypass guidelines in a developing country. 91% felt more likely to be asked to work outside their capabilities in developing world. Examples will be presented, plus student-generated definition of 'ethical' electives.

Conclusions: Of interest are the reasons given for "going along with" uncomfortable invitations. Discussion includes strategies for preparing students for decision-making in new cultural contexts. Are 'home' processes are too inflexible to prepare students for 'real' medical life?

Take-home messages: Ethical decision-making and communicating reservation should be included in elective preparation. Attitudes towards developing world medicine are raised.

3G/5
Australian medical student reflections on placements in Indigenous health: "I felt like I was in a completely different country."

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Background: Improving the health of indigenous people is a critical and complex problem. Australian Indigenous people suffer from poorer health outcomes compared to non-Indigenous people. Addressing these iniquitous health outcomes is a challenge to the Australian healthcare system, and an important part of the medical school curriculum.

Summary of work: Using a five-step Framework analysis we analysed four years (2009 – 2013) of reflective reports from graduate entry medical students who had spent some portion of their elective term in areas with a high proportion of Indigenous patients, or in an Aboriginal Medical Service. Each researcher read the reports independently to establish an open coding scheme and identify recurring and dominant themes.

Summary of results: Despite curriculum reform and continued efforts to improve students' understanding of the health issues faced by Indigenous Australians, the dominant themes exposed students' stereotyping and prejudices. Many demonstrated a 'cul-de-sac of self-congratulation' when engaging in the reflective process, instead of recognising the need for more empathic action.

Conclusions: Elective term placements may do little to help students understand the long-term crisis in Aboriginal and Torres Strait Islander health.

Take-home messages: More research needs to be done to develop curricula and delivery of teaching and learning resources to aid medical students' knowledge, skills and attitudes towards Indigenous people as they attend healthcare services.

3G/6

International electives in low income countries: What are students learning?

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Background: Over one-third of UK medical students go on an elective in a Low or Middle Income Country (LMIC). However, the learning experience and educational outcomes from these placements are still poorly defined. We sought to understand: How students are learning while on electives in LMICs; What are students learning and, how can learning be improved during the elective placement?

Summary of work: In 2012 a sample of medical students (n=9) doing electives in LMICs completed weekly electives diaries describing their on-going educational experiences. An inductive approach was taken to analyzing the diary entries (n=44).

Summary of results: 'Learning Process' focused on clinical and cultural exposure and authentic practice. Less frequently students described self-directed learning or reflection. Main 'learning outcomes' were gaining awareness of different medical cultures and confidence in clinical skills. 'Missed opportunities' include lack of critical reflection and incomplete understandings, particularly concerning social determinants of health, health systems, and unfamiliar medical cultures. Students described feeling confused or conflicted but were uncomfortable discussing all issues with their local colleagues.

Conclusions: According to Kolb's Theory of Learning, students are engaging in experiential learning activities, but without adequate supported opportunities for reflection on their experiences, analysis, or synthesis of experience. Students are improving on their clinical skills and confidence, but not supported in learning in other competency domains as set out in Tomorrow's Doctor.

Take-home message: Students in LMICs are engaged in clinical practice that benefits their skills and confidence. Learning from the observation of unfamiliar medical cultures and contexts could be further supported by structured opportunities for reflection that link global health concepts with students' first-hand experiences.

3G/7

The benefits of a community based volunteering elective in the undergraduate curriculum

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Background: Foundation year undergraduate students (medical and physiotherapy) in the Royal College of Surgeons are given a choice of electives as part of their second semester curriculum. 21 students took part in one of these electives based on intellectual disability.

Summary of work: Students volunteered once a week for 6 weeks in a community based special needs club. Members ranged from 7 to 71 years; their intellectual disabilities included Downs Syndrome, Autism, and Fragile X Syndrome. Students completed a written assignment and gave oral presentation of their experience.

Summary of results: Surveyed feedback was very positive with 100% of students agreeing they gained valuable skills related to their future careers. Qualitative feedback demonstrated an increase in student's confidence, interaction, communication, and team working skills. Students felt the elective enabled them better approach and communicate with an individual with intellectual disability.

Conclusions: This elective was positively received by foundation year students, academic staff, and the community based club. Early student experience in the community club significantly improved their interaction and communication skills. The associated assignment and oral presentation also equipped students with medical knowledge in addition to improving their team working skills.

Take-home messages: Designing and introducing a volunteering elective as part of the undergraduate curriculum is a novel way of educating healthcare professional students. It is mutually beneficial for the educational institute and the local volunteering organisation. This elective is an example of 'colouring outside the lines,' a similar design could be applied to many medically related topics linking them with volunteering organisations e.g. cancer, heart disease, and physical disabilities.

3H Short Communications: Clinical Teaching 1
Location: Club H, PCC

3H/1
Medical students' experience of learning physical examination: "Going through the motions"

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Background: Competency in physical examination is a core requirement in medicine. Much research has focused on the measurement of skills but little on the actual learning of physical examination.
Summary of work: Using a direct phenomenological approach, medical students from years two to four (four-year medical program) were interviewed in focus groups or individually. Interviews were transcribed and analysed to develop an understanding of the lived experience of medical students as they learnt physical examination.
Summary of results: Students' experience of learning was reduced to the memorisation of the checklist and the recital of normal findings, without engagement in the actual task of physical examination or clinical reasoning. They were just "going through the motions".
Conclusions: Medical students' experience of learning physical examination was deeply influenced by the impending assessment; they only learnt what was required to pass an OSCE examining SPs without "abnormal" physical examination signs. Also, they were influenced by the process, content and venue of their learning as they learnt exclusively on peers, isolated from real patients and with limited teaching or experience of the clinical reasoning process. Medical students' approach to learning physical examination focuses on the technical aspects, not on identification of signs or clinical reasoning, and this prepares them poorly for its use in real patient-care situations.
Take-home messages: Constructive misalignment between educational goals, teaching and assessment will lead to unexpected learning behaviour. It is advisable, therefore, never to assume how students learn but to critically evaluate it.

3H/2
Shifting Contexts and Relationships: Consequences of Transition from Longitudinal Integrated Clerkship to Rotation-Based

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Background: Students in UAlberta's Longitudinal Integrated Clerkship (LIC) spend their entire 3rd year in rural communities. Students return to the city for a rotation-based clerkship (RBC) for fourth year. The research question was: "What was the experience of LIC students in Year 4?"
Summary of work: This hermeneutic phenomenologically guided study was conducted from 2009-2012 through semi-structured interviews with students near the end of their 4th year. Transcripts were analyzed individually and holistically for meaning, then together for emerging themes. Analysis progressed through description to grounded theory.
Summary of results: Students' transition to RBC was marked by significant changes in the learning environment, in relationships with patients, preceptors and other health professionals and in students' degree of engagement in and responsibility for patient care. Most students were successful in finding meaning in the RBC experience. Many students experienced feelings of discontinuity, disengagement, confusion about their role and contribution.
The reversion from student physician (work) to student (study) described by the students affected their developing professional identities. Emphasis shifted from learning with, from and about patients to learning about patients; and from collegial and ongoing relationships to hierarchical and temporary contact. All participants experienced a sense of loss—of motivation, of agency, and of identity. Some adapted more readily than others.
Conclusions: Recognizing how the transition from LIC to RBC affects students can help develop ways to ease the transition. All clerkships need to be examined more carefully for impact on learning and professional identity formation.
Take-home messages: The structure of clerkships has significant impact on learning and professional identity formation.

3H/3
Exploring medical students' learning on ward rounds

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Background: Medical students attend ward rounds as part of their undergraduate training. It is known that learning in clinical settings is a complex area and there are many influences that can interact with the learning environment.
Summary of work: An ethnographic study using a case study approach was used. Obstetric ward rounds were observed by the researcher and focus groups of Year 3 medical students were undertaken to triangulate data and to develop further understanding of influences in

further depth. Analysis of the data used a thematic approach.

Summary of results: Three main themes arose from the data. Students as outsiders, learning in clinical settings and supported participation. Students felt excluded by not understanding the process of the ward round, the language used and unmet expectations. There are challenges of learning in a chaotic environment however the students valued seeing the "real" patient rather than tutorial or lecture based learning. Finally the last theme reflected the important influence that the doctor leading the ward round had in supporting students' learning.

Conclusions: There appeared to be some simple fixes that might improve learning such as signposting learning for the students. More complex areas are about developing skills that are needed by the doctor leading the ward round in order to be able to juggle the different needs of students, junior doctors, patients and other health care staff. It seems that there is a need to develop teaching skills in this complex area.

Take-home messages: This is an important area of learning for both undergraduates and postgraduates. Different skills are required in order to successfully support effective learning in the clinical environment.

3H/4
Narrative of the process of early clinical learning. Opinions of experienced clinical teachers

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Background: The question of 'how students learn' usually leads to the study of learning styles and strategies. However, a recent investigation suggests that –during early clinical training- several additional factors are involved. Aim: To describe a narrative -built from the reports of experienced teachers- that describe the experience of medical students in the initial clinical training.

Summary of work: A qualitative methodological approach was used. Eight faculties of clinical-cycle courses were interviewed. Data was analyzed using grounded theory.

Summary of results: Four factors related to early clinical learning emerged: 'Actors', 'Activities', 'Actions' and 'Clinical Fields'. The 'Actors' category included –besides the classic triad student/teacher/patient- two additional characters: the intern (senior medical student) and the

resident. 'Activity' encompassed a myriad of educational activities organized in a theoretical and practical course, which aims at the integration of basic biomedical content through interaction with patients. The 'Actions' of students were mainly scheduled by the tutor and emphasized the critical reflection of clinical cases. Finally, 'Clinical Fields' referred to different learning scenarios: some were the formal fields articulated by the curriculum while others were self-managed by the student.

Conclusions: As can be inferred from the faculties' reports, social and situational aspects set the scene and guide the learning process of medical students at the beginning of clinical training.

Take-home messages: Social and situational aspects of the learning process must be considered in the analysis of the strategies that students use to adapt to the demands of medical training.

3H/5
Structured observations of teaching and learning in clinical settings

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Helen Heussler (The University of Queensland, School of Medicine, Brisbane, Australia)

Background: The need for quality clinical placements is an issue for medical schools internationally who are dealing with significantly increasing student numbers and changing demographics and illness patterns. There is a need for a cost-effective, evidence-based curriculum in clinical settings for the benefit of both teachers and learners. Structured observation measures the extent to which high cognitive teaching and learning is occurring in different clinical settings.

Summary of work: Mixed methods of structured (time sampling) and unstructured observations, focus group discussions (students and teachers) and questionnaires were used in a final year clinical rotation of a graduate entry medical program. Congruence between teaching and learning objectives and documentation of valued learning were recorded.

Summary of results: Many actions were teacher focused, involving low cognitive effort and passive learning. Learners perceived low value in working ward rounds. Teachers and learners had similar views on the value of different learning opportunities and characteristics of good clinical teaching. Constraints on learning imposed by organisational issues occurred frequently.

Conclusions: Structured observation is able to identify when and how learning and teaching occur during a clinical rotation and can identify constraints (perceived and real) to learning and teaching opportunities. In time poor teaching contexts clinical attachments should acknowledge the most valuable learning opportunities. Programs for professional development of clinical

teachers are imperative to facilitate valued higher cognitive learning opportunities.

Take-home messages: It is often logistical and organisational issues that detract from learning. Structured observation is useful for providing an objective account of the type of teaching and learning occurring in medical education settings.

3H/6
Less is More: Reduction of the Practical Year Logbook on an Excellence Basis Results in Higher Compliance

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Background: In 2004 we introduced a students' logbook for the on-ward surgical period of the final undergraduate year. It contained 31 procedures that had to be observed or performed several times under supervision, recorded, and evaluated by the training surgeon. The logbooks were collected for assessment at the end of the period. In 2009 we reported that compliance had been very poor; 59% of the collected logbooks were empty or contained no records of clinical procedures and the rest contained only very partial records.

Summary of work: Informally the students explained the low compliance by lack of time or interest of doctors and preferring their own notes, which they could keep for future learning. Accordingly a new version with fewer procedures was introduced that with one exception had to be recorded and evaluated only once. After practicing and feeling secure in performing a procedure the students were to have their performance evaluated by doctors who were assigned to this duty or within the weekly practice afternoon. The collected logbooks were returned within two weeks.

Summary of results: In the four surgical periods following the introduction of the shortened logbook compliance was 100% with 77%±16,7% (mean±SD) of the procedures recorded and 65%±24% of the procedures examined and approved.

Conclusions: Although the desired situation has not yet been reached, the results show that adjustment of a logbook on an excellence basis to the needs of the students and the workload of the doctors increases the students' compliance.

3H/7
The Trialogue: a framework for teachers to integrate complex teaching and clinical skills on the ward round

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Background: Leading ward rounds effectively requires integrating complex teaching, communication and clinical skills; which many senior trainee doctors find difficult. This can leave both learners and patients with unmet needs.

Summary of work: Qualitative action research methodology with insider research was used to analyse the ward round process using Engeström's 'Activity Theory' framework. The Trialogue provided an explanatory framework for clinical teachers to conceptualise and plan teaching and clinical interactions between teacher, learner and patient.

Summary of results: Senior trainees often isolate learners from patient contact, moving teaching away from the ward. Practical application of The Trialogue suggests that such trainees, when equipped with an analytical framework, engage learners more meaningfully in patient contact on the ward round, although this is dependent on the teachers' teaching and 'reflection-in-action' skills.

Conclusions: The ward round is not a natural teaching environment, requiring clinical teachers to demonstrate the application of a complex integration of clinical and teaching expertise, both in planning ward rounds where learners are engaged and 'in the moment'. The Trialogue enables senior trainees to adapt to this role, but they need specific teaching skills, including that of 'Reflection-in-action', before applying the framework in practice.

Take-home messages: Leading a ward round which engages learners meaningfully needs clinical teachers to have acquired teaching skills before they are expected to assume the role: The Trialogue can help facilitate the requisite complex integration of clinical and teaching skills.

3I Short Communications: Postgraduate Education 1

Location: Club A, PCC

3I/1

Ensuring the "trainee voice" is heard. A description of the methods used to appoint, train and articulate the representative voice of Trainees in Schools serving Secondary Care

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Background: It is recognised in the literature that delivery of curriculum is improved when the Postgraduate doctor has an opportunity to comment on all aspects relating to the standards of curriculum delivery (GMC). It is also implicitly stated that such commentary is mandated in "The Duties of a Doctor" (GMC).
Summary of work: The Postgraduate Deanery for Kent, Surrey and Sussex (KSS) has recruited trainee representatives for all the Programmes it manages. It has also appointed a trainee representative of all representatives to engage with and communicate the most important themes emerging from this cohort of individuals. These themes are moved onto the Secondary Care group meeting of all Schools and then onto the Deanery Business plan for the following year.
Summary of results: We describe the selection methods for recruiting trainee representatives. We also describe the terms of reference of the overarching Trainee Representative and their competitive appointment. The Schools run regular training for the role and we describe the syllabus for these events and summarise the assessment of the training and its subsequent modification.
Conclusions: To ensure a standardised approach to the selection, appointment and training of the trainee representative in KSS secondary Care Schools.
Take-home messages: An efficient and effective trainee voice on the delivery of PGME Programmes enhances their delivery.

3I/2

Knowledge, skills but not attitudes change with pain education

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Background: Poor management of acute pain in hospitals (Hefand 2009) is partly a consequence of junior doctor prescribing habits. These are influenced by learning and memory schemas, which generate values about specific therapies (Higgins 2005). Barriers to effective analgesia include value judgements, influenced by attitudes rather than cognition. (Bunnin and Yu 2004). Junior doctors lack knowledge regarding pain management, but attitudes appear to evolve with training. Aim: Evaluate the effect of a knowledge-based teaching session on confidence in pain management and value judgements on analgesic drugs.
Summary of work: A knowledge based education session ("iv loading of opioids") was delivered to 18 Foundation Year 1 doctors. This included video based clinical scenarios and factual information. Pre- and post-teaching assessments used 100mm visual analogue scales (VAS) to assess confidence and ease of managing an acute pain scenario and eight value judgment word pairings (e.g. risky-safe, anxious-unconcerned) for morphine and paracetamol. VAS lengths before and after teaching for each variable were compared using paired t-tests.
Summary of results: Confidence and reported ease of management improved significantly following teaching (p<0.001). There was no statistical difference in VAS scores for each judgement word pairing, which remained unchanged after teaching for both drugs.
Conclusions: A purely knowledge based educational intervention significantly improved confidence and reported ease of managing an acute pain scenario, however value judgments regarding analgesic drugs remained unchanged. Whether increased confidence leads to experiential learning, which subsequently influences value judgments long term, requires further evaluation.
Take-home messages: Effective pain management teaching that focuses on knowledge alone may be inadequate to change clinical practice.

3I/3

The relation between educational innovations, attention to competencies, learning environment and preparedness for practice. A correlational study to evaluate postgraduate medical education.

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Background: Although the shift of Post Graduate Medical Education (PGME) towards competency based training has been embraced by many educationalists

and practitioners, the effects of this shift on preparedness for independent practice are unknown. That's why we explored how elements of competency based programmes in PGME are related to perceived preparedness for practice among new consultants.

Summary of work: After developing a conceptual model of the relationships between educational innovations, attention to competencies, the learning environment, and preparedness for practice, a questionnaire was distributed among 330 new consultants from various specialties to examine these relationships, adjusting for general self-efficacy and gender. Respondents were asked to rate how well their PGME training programme prepared them for practice, the degree of implementation of educational innovations, attention to CanMEDS competencies during feedback and coaching, and answered questions on the learning environment and general self-efficacy. Multiple regression and mediation analyses were used to analyse data.

Summary of results: The response rate was 43% (143/330). Controlling for self-efficacy and gender, the learning environment was the strongest predictor of preparedness for practice (B = 0.42, p < 0.001, followed by attention to competencies (B = 0.29, p < 0.01 and general self-efficacy (B= 0.23 p < 0.001. The overall model explained 53% of the variance in preparedness for practice. Attention to competencies mediated the relation between educational innovations and preparedness for practice. This mediation became stronger at higher values of the learning environment.

Conclusions: Our study showed that educational innovations and attention to competencies in PGME were related to higher levels of preparedness for practice, most strongly in a supportive learning environment.

Take-home messages: The learning environment plays a key role in determining the degree to which competency based PGME programmes prepare trainees for independent practice.

3I/4
Development of a Tool to Measure the Educational Environment in Outpatient Clinics

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Background: Postgraduate training in the outpatient clinic (OPC) has gradually declined in favour of inpatient experience despite the abundant and unique learning opportunities available. There is a need to maximise the restricted training opportunities within this setting. The aim of this study was to create a new instrument to assess the educational environment of the OPC for postgraduate doctors.

Summary of work: Following an extensive literature search and interviews with key stakeholders in

education an inventory of key areas and questions was developed. Refinement of this list led to the development of a questionnaire which was first piloted on a small numbers of trainees before a larger representative study was completed using a cohort of surgical trainees based throughout the UK.

Summary of results: A 78% (n=111) response rate was achieved. Analysis showed a high internal consistency for the whole questionnaire and subscales (whole questionnaire- Cronbach's alpha co-efficient 0.935). A principal component analysis was performed to identify the internal structure of the instrument and to reduce the number of items. It was observed that the items belonged to three sub-scales (Teaching, Learning and Supervision) and the number of items can be reduced to 20 without compromising the content validity of the instrument.

Conclusions: The final instrument is termed the Outpatient Educational Environment Measure (OPEEM) and is the first to specifically measure the educational environment in the OPC for postgraduate trainees. Potential future applications of the OPEEM include dispersion of the OPEEM to different medical specialties and assessment of varied cultural and geographical environments.

Take-home messages: There is need to improve postgraduate training in the Outpatient clinic. The development of a dedicated instrument will aid the assessment of the educational environment to facilitate improvements in educational quality.

3I/5
Factors affecting newly qualified doctors' wellbeing and implications for educational provision

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Background: Two UK reports, Tooke (2008) and Collins (2010) recommended first year postgraduate training improvements despite Modernising Medical Careers restructuring, weekly working hours reduced to 48 and educational supervisors' training.

Summary of work: Free association narrative interviews of nine Foundation doctors were undertaken and analysed using grounded theory. Data validity was verified by interviewing two Foundation programme directors.

Summary of results: Two main themes emerged: newly qualified doctors' wellbeing is affected by personal experience and work related factors. They start work feeling unprepared by medical school. Shift working affects personal and social life. Enjoyment and reward come from helping patients or teaching medical students. Support from health care professionals is much valued but often lacking.

Conclusions: Many factors affecting first year doctors' wellbeing are well described. New factors include shift patterns, work intensity and loss of team structure. Whilst becoming familiar with their roles, newly

qualified doctors search for identity and build up resilience. Support given during this process affects how they deal with day to day challenges, difficult issues, reward from posts and personal/social life impact.

Take-home messages: For first year doctors' wellbeing, provision of support should start with preparedness at medical school followed by high standard support by hospitals, senior clinicians, healthcare workers, family and friends.

3I/6
Introduction of Pilot Generalist Training

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Background: The KSS Deanery wished to respond to the desire to train postgraduate doctors to be generalists in response to the changing health provision and economy. The Deanery joined a pilot to place 12 post- Foundation trainees in a DG Hospital, a Psychiatric hospital and a GP Training scheme over 2 years. Six months experience is to be offered in Paediatrics, General Medicine, Psychiatry and General Practice.

Summary of work: The presentation will describe the work of the steering group and all the considerations to be made when introducing a new training scheme. Identifying suitable locations, training posts, liaising with four craft colleges, liaising with the General Medical Council, making provision for national recruitment, providing careers support, engaging educational psychologists to evaluate the trainees experience. Ensuring governance of the educational experience at local level by training and supporting Educational & Clinical Supervisors. Financial considerations and service provision for Trusts and GP practices supporting these trainees will also be reported on.

Summary of results: This is a live piece of work over the next 3 years. Preparation for the project began in September 2012 for implementation in August 2013. Full evaluation will be in September 2015. Interim evaluation and first stage summary will be available for August 2013.

Conclusions: Much of the evaluation will measure the decision making processes of the trainees as they progress through training and, at assessment panel at the end of year 1, make their final career decision.

Take-home messages: As healthcare moves towards generalism and community care, junior doctors can be supported in career decisions to work in these fields.

3J Short Communications: Professionalism 2
Location: Club E, PCC

3J/1
An examination of a professional theme in curriculum of a medical school - a mixed methods analysis

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Ian Wilson (University of Wollongong, Graduate School of Medicine, Sydney, Australia)
David Mahns (University of Western Sydney, School of Medicine, Sydney, Australia)

Background: This research will add to our current understanding of curriculum of professionalism in medical education from the context of teaching, learning, and assessing. Moreover, it will help to understand how the student develops and incorporates medical professionalism as a student and after graduation as interns.
Summary of work: Twelve in-depth interviews, three focus group discussions, and questionnaires were performed. In-depth interviews were carried out involving education staff, whilst focus group discussions and questionnaires involved students and interns. The topics for the in-depth interview, focus group discussion, and questionnaires consisted of the opinion about professionalism, the satisfaction of the integration of professionalism theme into curriculum, and whether professionalism theme in the curriculum has already prepared students for an ethical-practice internship.
Summary of results: Some themes have risen, e.g. the needs for the involvement of all stakeholders in integrating professionalism in the curriculum, the needs for engaging professionalism theme into a spiral structure in the curriculum, the needs for improvement in teaching and learning of professionalism theme in the curriculum, and the importance of professionalism theme in the curriculum for enabling students to perform an ethical internship.
Conclusions: There are some themes which have arisen from this research. The themes from the qualitative and quantitative data still need to be analysed further. The integration of the findings from the qualitative and quantitative data is important.
Take-home messages: As an important theme in a medical school curriculum, professionalism should be evaluated continuously, especially for preparing students for ethical internship.

3J/2
Which professional and unprofessional behaviours do Year 3 clinical medical students engage in?

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Background: Professional behaviour is an essential aspect of being a doctor. Medical students, as doctors-in-training are expected to learn and emulate the professional conduct shown by practicing doctors. This study records: 1.What unseen/unreported behaviours students display. 2. Students' insight into whether they are behaving in a professional manner.
Summary of work: Year 3 clinical medical students at the University of Bristol were asked anonymously to give two examples of a time they behaved professionally and two examples of a time they behaved unprofessionally. Responses were grouped and analysed thematically.
Summary of results: Many students demonstrated excellent examples of professional conduct. However, a surprising number of students engaged in behaviours which are considered unprofessional by licensing bodies such as the UK's General Medical Council. Recurring themes included dishonesty – such as lying about being ill, inappropriate behaviour outside of clinical areas, stealing medical supplies, lateness and inappropriate dress. Full results will be presented.
Conclusions: This study has shown that year three students engage in unprofessional behaviours. It has also demonstrated that the students are aware that they are behaving in an unprofessional manner. It is known that professional behaviour improves through training, however these findings suggest that it should be addressed earlier in the medical school curriculum.
Take-home messages: Year 3 medical students are aware of what constitutes professionalism but do not always engage in professional behaviours. It is essential to address this early in training.

3J/3
Experiences of a professional behavior board

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Background: Professional behavior has become a cross-cutting element in medical curricula. Our definition of professional behavior is "observable behavior from which the norms and values of the medical professional can be inferred". Professional behavior can be divided into three domains, i.e. 'dealing with tasks/work', 'dealing with others' and 'dealing with oneself'. At our medical school, a student who behaves unprofessionally, can be referred to the LUMC professional behavior board. This board consists of MDs as well as a psychologist and invites the student to discuss his/her case. In conjunction with the student a remediation program will be started.

Summary of work: We categorized the reported cases (June 2009-January 2013) in terms of the three domains, in terms of the phase in the curriculum, gender and background of the student.

Summary of results: Over the past 3,5 years, 69 cases were reported (about 2 % of the students), most of them during the internships. The majority was male (n=46, i.e. 67% of the reported students, whereas of the total amount of students only 35% is male), about 30% (n=21) was of foreign background and in most cases a combination of domains was impaired.

Conclusions: Unprofessional behavior is most often observed during internships. Men and foreign students are over-represented. The outcomes at LUMC seem to match with the outcomes of other medical schools, but more research is needed to confirm this.

Take-home messages: A minority of the students is referred to our professional behaviour board, most often during internships. Men and foreign students are over-represented.

3J/4
Students with professionalism lapses: Remediation approaches at US and Canadian medical schools

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Background: Medical schools have been increasingly engaged in the teaching and assessment of medical professionalism, as reflected in the medical education literature. By contrast, there have been limited reports on formal remediation for medical students with lapses in professional behavior, an area that has not been well researched.

Summary of work: The authors conducted a cross-sectional, descriptive study examining strategies used by US and Canadian medical schools to remediate students' lapses in professionalism. Senior faculty or administrators responsible for professionalism at these schools were invited to participate in the study and 85 accepted (55%). Data were collected by phone interview using a structured questionnaire comprising open and closed-ended questions.

Summary of results: Schools generally use a number of strategies to remediate unprofessional lapses. The most commonly used are mandated mental health evaluation (and/or treatment); repetition of course or clerkships under faculty supervision focusing on professionalism deficit; directed independent study with or without assigned projects; stress management counseling and professionalism mentoring. Community service is not frequently prescribed. Some respondents highlighted the importance of dialogue with the student and others emphasized the evaluation of student stress level and mental health. Thirty-eight schools have a faculty development program to train faculty on how to respond to professionalism issues.

Conclusions: This survey found schools employing a range of professionalism remediation strategies.

Take-home messages: The remediation of professionalism lapse requires a variety of individualized strategies.

3J/5
Teaching, training, and assessment of professional behaviour at VUmc School of Medical Sciences Amsterdam

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Background: Training in professionalism has been recommended as an integral part of the medical curriculum. We wanted to design a programme in which professional behaviour would be enmeshed in medical and technical/clinical courses.

Summary of work: We designed an educational theme "Professional Behaviour" (PB) as a longitudinal thread throughout the six-year curriculum, and implemented it from September 2010. All teachers are involved in explicit and implicit teaching of PB. PB is taught to all students and not only to those who display unprofessional behaviour. Both formative and summative assessments are carried out for PB. Students' self-reflection is promoted by feedback from peers and teachers. Longitudinal guidance of "unprofessional" students is achieved by "forward feeding" of students' learning goals.

Summary of results: The total number of students in our institution is about 2500. In the last five academic years the number of unsatisfactory judgments on PB rose from 12 (2008/2009), 38 (2009/2010), 38 (2010/2011), 83 (2011/2012) to more than 100 (expected for 2012/2013).

Conclusions: The awareness and knowledge of students and teachers about PB has improved and unprofessional behaviour is increasingly being reported. Creating an educational theme of PB helped in communicating the importance of good professional behaviour and of reporting unprofessional behaviour to the teachers, as was reflected in the increase in the number of unsatisfactory judgements reported.

Take-home messages: Formative assessments are important moments for giving feedback to the students on their professional behaviour. Summative assessments can be used to filter students with unprofessional behaviour.

3J/6

Components of the Conscientiousness Index and Peer Estimates of Professionalism in undergraduate medical students

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Background: Negative behaviour in medical students is associated with post-graduate disciplinary action. It would therefore be useful to have a model whereby unprofessional behaviour at undergraduate level can be easily identified.

Summary of work: We have previously developed a scalar measure of conscientiousness, the Conscientiousness Index (CI), which positively correlates to estimates of professional behaviour in undergraduate medical students. We have examined which of the 16-20 components that comprise the CI have the greatest level of correlation with peer estimates of professional behaviour.

Summary of results: Initial evaluation of data suggests that the component with the greatest level of correlation to peer estimates of professional behaviour is whether students have completed course evaluation feedback tasks. This is despite this activity being a relatively small component in terms of CI points awarded.

Conclusions: Completion of course evaluation tasks is a good predictor of peer estimates of professional behaviour.

Take-home messages: When constructing and implementing a scalar of conscientiousness as a proxy measure of professional behaviour in undergraduate medical students the inclusion of course evaluation tasks is a key component despite comprising only a small proportion of available CI points.

3K Short Communications: Leadership 1
Location: Club B, PCC

3K/1
A study to explore the effectiveness of different leadership learning opportunities

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Background: Because of its importance in improving and maintaining high standards of patient care, leadership is part of the curriculum for postgraduate doctors in all specialties. This study demonstrates that doctors in training are more likely to report learning in all the domains of the Medical Leadership Competency Framework(MLCF) if they have carried out a project over time or held a leadership role.
Summary of work: The Deanery has made one annual documented formative leadership assessment mandatory for trainees and their supervisors who were encouraged to use the LEADER tool which supports discussion about each of the domains of the MLCF. Trainees were surveyed about their experience of this assessment, their leadership learning opportunities, and asked to map their leadership learning to these domains.
Summary of results: 212 trainees completed the survey. Trainees that reported learning in all domains of MLCF were more likely to have reflected on a number of different experiences as part of implementing a change project or to have held a leadership role such as trainee representative. Where the learning opportunity was a single experience, trainees were more likely to have covered only one or two of the domains.
Conclusions: Undertaking a project to implement a change over time or taking on a leadership role is more likely to enable trainees to develop their leadership skills in all domains of the MLCF during the course of the year.
Take-home messages: Sustained projects and leadership roles are good opportunities to increase the breadth of leadership skills learning for doctors in training.

3K/2
Leadership behaviors in clinical practice in relation to job-satisfaction of residents

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Background: Job satisfaction is related to job performance, patient safety and stress –a common problem among residents. Therefore, it is important for residents to be satisfied with their job. Research outside of medical education shows that leadership behaviors contribute to job-satisfaction. In transactional leadership theories, task and relation leadership behaviors are distinguished. In this study we investigated whether task-oriented and relation-oriented leadership in clinical practice relate to residents' job-satisfaction.
Summary of work: Recently appointed residents (N=165) were invited to fill out a questionnaire. Task-oriented and relation-oriented leadership of clinical supervisors were each measured on 2 behavioral aspects (4-point scale,1=never,4=often). Job-satisfaction was measured on 14 aspects, categorized in three domains of work: the cognitive, affective and instrumental (10-point scale,1=not satisfied,10=completely satisfied) (Ostroff,1993).
Summary of results: Respondents were 117 residents (71%). Task-oriented leadership correlated significantly with appreciation for management (r=.22) and appreciation for administrative tasks (r=.17). Relation-oriented leadership correlated significantly with satisfaction with professional accomplishments (r=.20), appreciation of (r=.22) and collaboration with colleagues (r=.12), appreciation for management (r=.26) and appreciation of patients (r=.26).
Conclusions: Task-oriented leadership related to less aspects of job-satisfaction than relation-oriented leadership. According to theory, task-oriented leadership enhances residents' learning. However relation-oriented leadership seems to be at least as important for residents because of its larger influence on job-satisfaction.
Take-home messages: Clinical supervisors should be aware of the influence of their leadership behaviors on several aspects of job-satisfaction of residents.

3K/3
What makes a practice leader good?

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Background: As our previous studies have shown, the quality of the practical education is the most important factor influencing student satisfaction. Therefore, development in this field can efficiently increase the prestige and marketability of the faculty.
The goal of our study was to explore the connection between the personality of the practice leader and the judgement of the subject and to define the factors, which determine the judgement of the practice leaders.
Summary of work: 16581 anonymous questionnaires have been processed. Explorative and confirmative factor analysis has been used to validate the inventory.

Forward stepwise automatic linear modelling was used to explore the underlying connections between the items.

Summary of results: Our developed questionnaire can define the judgement of practice leaders with 94,6% validity and in four components. Satisfying, 65-80% accurate linear models were made, which have determined, that the personality of practice leader is only the sixth most important factor in the judgement of his/her subject. In the judgement of the practices, the personality of practice leader is the second most important, right after the usefulness of the practice. External factors do not influence the judgement of practice leader, each of the ten important influencing factors are connected to his/her personality.

Conclusions: Although the practice is the most important in the judgement of the subject, but its usefulness is more important, than the personality of practice leader. External factors do not influence the judgement of practice leaders, but different factors depend on the year and the nationality.

Take-home messages: The secret of the good practice is the usefulness.

3K/4
A unique evaluation approach to examine and enhance effectiveness of a Leadership and Management Training Programme (LaMP) for Medical Specialty Trainees in NHS Scotland

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Background: To provide high-quality service to patients, Doctors need to possess leadership and management competences. NHS Education for Scotland and the TDSU* deliver a national Leadership and Management Training Programme (LaMP) which aims to support medical professionals to become effective leaders/managers through the acquisition of generic competencies, that map to the Medical Leadership Framework.

Summary of work: New educational research is examining the effectiveness and impact of LaMP training through an integrated evaluation approach combining the use of an enhanced version of the Kirkpatrick Model (Levels 1-3) with a Theory of Change approach i.e. Logic Modelling. Employing mixed methods, the evaluation aims to assess clinicians' satisfaction with courses and knowledge, attitudes and behaviours related to leadership and management using a comprehensive self-report pre/post-course questionnaire (L 1-3). A test of knowledge examines learning acquired of course taught content (L 2). Changes in clinicians' behaviour/practice are examined using detailed training impact surveys, semi-structured qualitative interviews and an analysis of workplace multi-source feedback data (L 2 & 3). Qualitative data is thematically analysed. Access, Excel and SPSS are used to analyse quantitative data.

Summary of results: The on-going evaluation has captured some positive results endorsing the quality and delivery of LaMP. The Programme Logic Model and results from the tests of knowledge will be presented as well as the impact of the programme upon clinicians. Self-reported and workplace assessment data will be triangulated.

Conclusions: Leadership and Management training may have the potential to exert a positive impact upon Doctors. Improving quality of training could strengthen its impact and this can be more reliably assessed utilising integrated evaluation approaches.

Take-home messages: Implications and learning from the programme and evaluation are informing the wider national and international agenda of health service quality improvement and better patient care.

3K/5
Developing leadership in rural healthcare education

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Background: Rural healthcare educational leadership and succession planning have been identified as areas of need across the world. The Federation of Rural Australian Medical Educators (FRAME), the peak body representing 17 Rural and Regional Clinical Schools (RCS) has developed an innovative course for potential leaders.

Summary of work: Australian RCS have been outstandingly successful in establishing training infrastructure evidenced by emerging numbers of medical graduates trained in and for rural practice. While the development of clinical leadership skills and roles is increasingly recognised as a prerequisite for improvements in the quality of care, there is little evidence of successful succession planning to advance healthcare educational leadership in rural settings.

Summary of results: An Australian course to develop health educators' leadership skills has evolved over the past three years. In 2013 it will be delivered by RCS faculty for colleagues. Evaluation results will be presented and discussed. The four day program has been designed as an intensive, experiential and active approach to learning with activities built around 4 central themes: Leadership concepts and challenges in rural healthcare education; Understanding self as a leader; Leading teams and managing difficult and complex situations; Setting direction and RCS succession planning.

Conclusions: Succession planning is an essential part of educational strategy. Developing rural healthcare education leadership is complex and takes time. Service and training issues are inextricably linked and capacity-building around both must be continuous to ensure sustainability.

Take-home messages: Invest in leadership training as an essential pre-requisite for workforce sustainability.

3K/6
Exploring a health professions students'
perceptions toward leadership and facilitation: a
case from Japan

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Background: Effective human relationship among health
professions is vital in multidisciplinary teamworking.
Although there is a wealth of literature on team working
and leadership from western countries, more studies in
undergraduate settings are needed in Japan since how a
team works is usually based on cultural context. We aim
at exploring health professions students' perceptions
towards teamwork, leadership and facilitation.
Summary of work: A two day-case based seminar with
small group discussions was delivered for 26 health
professions students from 5 different professions. Focus
group was conducted to investigate perceptions toward
multidisciplinary team working, leadership and
facilitators. The transcriptions were analyzed with
thematic analysis.
Summary of results: The seminar provided participants
with deep understanding of the role as well as
competence of their own or other health professionals,
which was hard to understand within their own schools.
Their image of other health professions was already
transformed. Medical students took it for granted to
take initiatives while other students did not because of
their incompetence as professionals or prejudice against
other professionals.
Conclusions: Although previous literature demonstrated
that interprofessional teams need skilled leadership and
members who respect and value each other, health
professions students have already transformed their
stereotyped perceptions of other health professions
from early stages of the school. Nevertheless, positive
cognitive change was also indicated. Japanese health
professions students' perceptions of
leadership/facilitator were demonstrated, which may be
useful for quality improvement of the seminar.
Take-home messages: Stereotyped perceptions and
clinical experiences must be well balanced when
designing multidisciplinary education.

3L Short Communications: Teaching and Learning

Location: Club C, PCC

3L/1
The art of observation: visual analysis training for medical students

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Background: Although visual skills are inarguably crucial for competent clinicians and although many institutions have initiated programs using visual arts to develop observational skills, enhance creativity, and introduce cultural models of illness and healing, little evidence reflects these goals are being met.
Summary of work: Clinical observation extends beyond what one sees to how one processes and integrates that information. We developed a novel, elective, visual-arts-based series of courses to enhance students' visual observation skills and help them explore the role of perception, biases, emotion, and communication in the observational process. Small groups of first- and second-year students spend 5-15 two-hour sessions at the Metropolitan Museum of Art with an art educator. Through inquiry-based discussion and writing and sketching exercises, they explore the formal elements of myriad artworks and participate in activities to pique understanding of biases, emotion, and communication in the visual process.
Summary of results: Assessment plans include pre- and post-course visual observation using both art and medical images, as well as longitudinal tracking of performance in visually-associated courses (e.g., radiology, histology). We are currently exploring other methods to quantitatively assess impact on clinical thought processes and practice.
Conclusions: Strengths include helping students learn skills not traditionally addressed in medical education. Limitations include whether acquired skills are applicable in clinical settings and whether the general student population will be open to this novel approach.
Take-home messages: The visual arts offer a rich resource to enhance observational and other clinical competencies. Further study is necessary to demonstrate its efficacy.

3L/2
Should Asians do as the Romans do? Exploring the factors that influence Asian performance in small group learning

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Background: As the learning process and view are different across cultures such as east and west, both students and faculties should understand how others learn or teach based on their cultural assumption when they learn collaboratively. Since little is known about Asian learners internationally, we aim at describing Asian characteristic and view of learning to seek a better understanding for international faculties.
Summary of work: To construct a conceptual framework, both realistic literature review and semi-structured interview were conducted. A review was mainly focused on learning process and Asian characteristics in group learning situation. The interview was done with the Japanese who have cross-cultural experiences of group learning in a medical context.
Summary of results: Literature review revealed several key features such as the order of learning, performance in group, several functions of listening, educational orientation, group dynamics, which comes from Confucian Heritage Culture's (CHC) collectivism and uncertainty avoidance. The interview data showed the Japanese had lots of cultural shock, confusion and dilemma when they situated in the group discussion which was different from their previous experiences. Interestingly the data described how they challenged to change their behavior to solve the situation. They also appreciated discussing the learning process with peers and teachers.
Conclusions: A useful conceptual framework of Asian group learning process based on CHC was demonstrated based on the literature. This study indicated several hypotheses of the next study into cultural difference and its implications in group learning.
Take-home messages: Understanding other cultures and sensitivity to the group situations will enhance learning effectiveness in cross cultural settings.

3L/3
Perceptions of self-direction in learning in Pharmacy undergraduates at the School of Medicine and Health Sciences, Monash University Sunway campus, Malaysia

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Background: Self-direction in learning is strongly associated with deep learning, and has been described as both an educational process and a goal. The

development of self-direction is considered a pre-requisite for effective lifelong learning.

Summary of work: This study was conducted amongst pharmacy undergraduates in all four Year levels, of a total enrolment of 178. Data from focus group discussions (based on a standard question set) was thematically analysed.

Summary of results: Study subjects were generally able to describe their pre-university learning in terms of the degree of teacher versus self-direction, but not all differentiated conceptually between self-directed learning (SDL) and directed self-learning (DSL). These concepts were not explained by the university. There was consensus that early years of learning in Malaysia are characterised by spoon-feeding, but that this progressively lessens as students approach and enter tertiary education. The development of self-direction was not universally seen as desirable although many subjects enjoyed the experience of self-direction. At university, adequacy of time, study programme and the perceived requirements of assessment strongly influenced the actual degree of self-direction.

Conclusions: The data are consistent with the concept of assessment driven learning, and appear to show intelligent or strategic use of learning methods to achieve perceived learning goals. Quantitative data are required to evaluate the extent of self-direction in the total subject population, in the context of their degree programme.

Take-home messages: The development of self-direction in learning requires adequate conceptual explanation, structured opportunities within a degree programme, and robust evaluation.

3L/4
Sherlock Holmes & Dr. House: Can we teach philosophical concepts and psychological pitfalls that underlie medical decision-making with the help of popular role-models?

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Background: Arthur Conan-Doyle's "Sherlock Holmes" is one of the most popular figures of literature. It has been adapted to over 200 films. His strategy of solving crimes was explicitly modeled after one of Conan-Doyle's medical teacher's diagnostic approaches. Recently, the character of Holmes has been used in the television series House M.D. We used the pop-cultural models of Holmes & House for teaching basic philosophical concepts and psychological pitfalls in medical decision-making.

Summary of work: We designed, conducted and evaluated two seminars (32 hours each) in two consecutive years. Students had to deal with problems of decision-making from real life (Firefighters, Mount Everest Expedition,..), literature (Holmes) and medicine (House). Finally they analyzed a case story from Sherlock Holmes. 40 papers were separately analyzed by two independent reviewers.

Summary of results: Most students were able to explicate the problem solving strategy used in the case (92%). They were able to highlight at least one (96%) or several (84%) sources of bias in the case.

Conclusions: Students were able to translate problem-solving strategies between the contexts of literature, medicine and everyday life.

Take-home messages: Using the popular models of Holmes & House proved a stimulating and fruitful strategy to teach basic philosophical & psychological concepts.

3L/5
Portfolio case reports in medical education: experience from one medical center in Taiwan

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Background: The clinical training course for the 5th year medical (M5) students and the 7th year medical (M7) students (interns) at the Department of Internal Medicine, National Taiwan University Hospital is 9 weeks and 13 weeks respectively. Since 2009, students must submit a brief case report with reflection on core competences before finishing their clinical rotations

Summary of work: Students submit their reports to the program directors by e-mail and get feedback from the program directors individually. Core competences reflected in the reports were recorded and analyzed for this study. Both reports (M5 and M7) of individual students were compared.

Summary of results: Percentage of M5 students had reflection on medical knowledge (MK), patient care (PC), interpersonal and communication skills (IC), professionalism (PR), practice-based learning and improvement (IM), and systems-based practice (SP) of 98.2%, 57.9%, 95.6%, 28.9%, 44.7%, and 32.5%, respectively. Percentage of interns had reflection on MK, PC, IC, PR, IM, and SP of 96.6%, 99.2%, 99.2%, 82.2%, 65.3%, and 61.9%, respectively. From M5 to M7, students were more competent on medical knowledge, patient care, and communication skills. Most students appreciated the value of being a good doctor and presented holistic patient-centered care, but a few were frustrated by heavy clinical loading.

Conclusions: Case reports focusing on core competence reflection provide valuable information on cultivation of medical students. The reports also disclose referable messages to train faculty and reform teaching program.

Take-home messages: Portfolio case reports are effective in assessing students' competence development.

3L/6
Comparison of jeopardy game format versus traditional lecture format as a teaching methodology in medical education

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Background: To compare students` performance, satisfaction, and retention of knowledge between a `jeopardy game format` and a `didactic lecture format` in teaching viral exanthema to fifth-year medical students.

Summary of work: We conducted a parallel-group randomized controlled trial in the Department of Pediatrics, Faculty of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia from November 2008 to January 2009. We randomized fifth-year medical students into 2 groups. We taught viral exanthema to group one in lecture format, while group 2 received the same instruction in a jeopardy style game format. Both groups underwent a pretest, post-test I, and satisfaction survey. We conducted post-test II after 2 months to assess the retention of knowledge. The satisfaction survey consisted of 5 questions using a 5 point Likert scale. We used the paired sample t-test, and independent sample t-test to compare the results.

Summary of results: Eighty-two students participated in the study (41 in each group). Both groups showed significant improvement in their knowledge on the post-test I compared with the pre-test scores. However, the post-test II conducted after 2 months showed that retention of knowledge was significantly better in the game format. The satisfaction survey showed that the game format was more enjoyable and fun.

Conclusions: The game format teaching strategy has an added advantage in retaining knowledge of the subject for a longer time compared with a lecture format.

Take-home messages: Gaming is one of the good methods of teaching and it is recommended to consider using educational games more frequently.

3L/7
The impact of medical television on medical students

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Background: Students enter medical training with a "knowledge" of what they will be doing, mostly derived from medical television programs.

Summary of work: This paper will explore first year students' perceptions of television medical programs. It will present the results of both quantitative and qualitative studies.

Summary of results: This study investigated the responses of a large number of students from the first four years of a five year school leaver course. Medical students watch a large number of medical television programs and believe they are reasonable representations of professional and ethical issues arising in medicine. Almost 60% of students had discussed issues arising in the programs with their family or non-medical peers. The qualitative study raised three dichotomies in students' minds – empathy versus clinical knowledge, commitment versus work-life balance and clinical practice versus administration. For students in this study the dichotomy of empathy versus clinical ability created the most discussion.

Conclusions: Medical television programs are a powerful driver of student attitudes and provide a rich resource of important issues that could be used for discussion. Students have well developed views of medicine when they commence training. The dichotomies highlighted in this study also indicate the difficulty students have in conceptualising practice that is both empathic and clinically sound.

Take-home messages: Medical television is a powerful influence on our students. Medical students commence training with a well-developed, often incorrect, understanding of medicine. It will be important to discuss the both/and approach to empathy and clinical expertise.

3M Short Communications: Student as Teacher 1

Location: Club D, PCC

3M/1
Peer lectures in the medical undergraduate curriculum: a valid tool for learning?

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Patrik Bachtiger (UCL, United Kingdom)
Elissa Rekhi (UCL, United Kingdom)
Vruti Dattani (UCL, United Kingdom)

Background: Near-peer teaching is increasingly recognised as a valid tool in undergraduate medicine. This usually involves tutorials or clinical skills teaching, often in small groups, while lectures are seen as the remit of doctors. We designed and delivered ten interactive 'peer lectures' for large groups of 100 students, and explored whether such lectures can be similarly validated.
Summary of work: Students provided feedback at the end of each lecture, using a questionnaire which rated various criteria from lowest (1) to highest (5). Questions focused on whether peers could provide high-quality interactive case-based lectures comparable to standard medical curricula. Tutors completed similar questionnaires to assess any benefits gained. Free text responses were encouraged.
Summary of results: The results from 633 students demonstrate that students found both the content of the lectures and the quality of the lecturers excellent (4.45; 4.52 respectively). They were also enthusiastic about future lectures (4.80). Feedback from 18 tutors reveals benefits including consolidating their existing knowledge (4.82) and developing teaching skills (4.71).
Conclusions: Medical students perceive peer tutors as fulfilling a high standard of teaching, which can supplement the undergraduate curriculum. Our feedback shows peers confer additional benefits: they are more approachable and intensively engage students by incorporating case studies and tips from personal experience. Since doctors are expected to teach not only small groups but also deliver presentations for large groups, the opportunity to develop these skills early is extremely valuable.
Take-home messages: Students interested in medical education should consider developing peer-teaching schemes that include lectures for large groups as this benefits both learner and teacher.

3M/2
Peer learning in an undergraduate clinical medicine course - implementation, compliance and lessons learned

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Background: The use and evaluation of peer learning has become more widespread in higher education and should be considered as a supplement to the traditional approach of the medical practice. This study investigates medical students' attitudes towards and perceptions of a specific method for peer learning.
Summary of work: A group of medical students at Uppsala University tried out peer learning during their clinical rotations on the fifth term. The peer learning model and method was evaluated by a questionnaire survey and a focus group interview.
Summary of results: The students perceived that the peer learning model was simple to use and that the evaluation from a peer was helpful in practicing and consolidating basic clinical skills. In general, students wished for more feedback on their performances during clinical placements and they found peer learning as one way to meet this desire.
Conclusions: The peer-learning model was assessed and regarded as a valuable method by the medical students. Letting peers cooperate and supervise each other is one way to meet the students perceived needs of more feedback. The method has the potential of being a valuable contribution to the students learning.
Take-home messages: Peer learning is a useful method for medical students during their clinical rotations.

3M/3
The Tuebingen peer tutor concept: How can a quality assurance system ensure sustainable quality in an established qualification program?

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Background: The increasing relevance of peer teaching in medical education requests an efficient quality assurance system (QAS) to control quality standards and save resources. In 2001, the Faculty of Medicine in Tuebingen implemented a dual qualification program for peer tutors: a standardized didactic training, followed by a specific professional training by the responsible departments. Evidence was given that the original program was highly effective and well accepted. Program expansion, with currently 17 departments demanding for tutorial support, meant heterogeneous requirements and increasing financial strain. The aims are to develop a QAS concept to ensure the quality and transferability of the training program, providing an acceptable cost-benefit ratio.

Summary of work: Based on an intensive literature research, a comprehensive QAS concept addressing all parties was designed. Structured interviews with 10 teachers guiding tutors in representative departments were conducted to illuminate tasks, conditions and challenges of tutors. All peer tutors trained in 2012 (n=103) were surveyed twice (pre and post tutorials; response: 98%, 45%) using 5-point Likert scale questionnaires.

Summary of results: Tutors highly estimated most didactic modules pre and post tutorial (e.g. "leading groups" 1.66±0.08 vs. 1.65±0.70; "presentation" 1.79±0.10 vs. 1.82±0.73). Ratings of the module "practical skills" differed significantly (F(8/82)=2,953, p=0.006), as it was not relevant for all tutorials. Tutorial profiles were derived; didactic training profiles with definite interchangeable modules were developed. Tutors required occasional meetings with professional and didactic experts (70%). Regular exchange meetings were initiated.

Conclusions: The QAS contributed to more transparency and efficient structuring. It initiated high cooperation of all parties and revealed prospects of development.

3M/4
The impact on student learning of assessing peers alongside supervisors in the long case

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Chris Roberts (The University of Sydney, Sydney Medical School - Northern, Sydney, Australia)
Kirsten Black (The University of Sydney, Sydney Medical School - Central, Sydney, Australia)
Craig Mellis (The University of Sydney, Sydney Medical School - Central, Sydney, Australia)

Background: In stage 3 of the medical program, Sydney Medical School, students are required to sit a formative long case examination. Students act as co-examiners of their peers, together with an academic examiner. We sought to investigate: (1) The level of agreement in marking between student and academic examiner; (2) Whether acting as a peer examiner improves one's own student examination performance; (3) The perception of the student per examiners' learning experience.

Summary of work: Over a 3 year period (2010 to 2012), students (N=197) were randomly allocated to co-examine their peers and to be examined themselves. Marking sheets of academic and student examiners were compared to assess agreement. Student examination performance scores were collected. All students (N=197) were asked to complete questionnaires and were invited to attend focus groups.

Summary of results: Marking sheets: 92% (182/197) were analysed. Student examiners consistently marked higher than academics across all marking domains. Data on order of examination were available for 92% (181/197) of students, showing no significant difference in student performance based on the order of examination. Questionnaire response rate 93% (183/197). Eight focus groups were held, with 27% (53/197) attendance. Acting as a student co-examiner was perceived by students as useful in preparing students for their own long case examinations. Students experienced difficulty providing critical feedback to peers.

Conclusions: Students were more lenient markers than the academic examiners. Participation as a peer assessor did not improve examination performance. The activity provided a rich learning experience for students, in preparation for their own summative examination.

Take-home messages: Further training in both assessment and feedback may enhance student educational and professionalism outcomes.

3M/5
Preparing students for career challenges through teaching practice

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Edna Regina Pereira (Universidade Federal de Goiás, Pediatria, Goiania, Brunei)
Luís Tófoli (UNICAMP, Saúde Mental, Campinas, British Sovereign Base Areas)
Leonardo Vasconcellos (Faculty of Medicine, Universidade Federal de Minas Gerais, Propedeutica Complementar, Belo Horizonte, Bosnia and Herzegovina)

Background: The practice of teaching represents an opportunity for students to be on the other side of the teacher-student relationship and acquire invaluable skills for their future careers.

Summary of work: Since 2006, an annual elective medical discipline organized by selected students (SS) has been offered. Under faculty supervision the students developed the teaching plan: theme selection, audience preparation, topic presentation, and the definition of

students' performance evaluation. Afterwards, the SS took over the managing process, promotion of topic discussions focusing in the clinical-laboratory-pathophysiological-radiological correlation as well as in concepts of cost-effectiveness, statistics and epidemiology, always supported by teachers. Twenty-eight students signed up for the last edition, and at each meeting, a structured questionnaire concerning the perception of the process was offered.

Summary of results: The answers indicated that the SS had been successful as teachers. Between 81.3%-100% of audience felt that the methodology contributed to their knowledge acquisition. A positive correlation was observed between the quality of the methodology and the feeling of knowledge acquisition ($p<0,01$;$PC>0,770$). Among the SS, all of them fully endorsed the initiative, were satisfied with the activities and the results obtained, and developed higher interest in the academic career/teaching.

Conclusions: Teaching practice for students may be a good strategy to improve the acquisition of specific knowledge as communication skills, planning and organization, important issues for the physician career.

Take-home messages: Tasks that put the students in close contact with teacher performance are well received, stimulate academic thinking, and should be promoted in the medical schools.

3N Short Communications: Medical Education Research
Location: Meeting Room 2.1, PCC

3N/1
Determinants of clarification studies in medical education research: a systematic review

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HY Neo (Tan Tock Seng Hospital, Palliative Medicine, Singapore)
WC Wong (Tan Tock Seng Hospital, Geriatric Medicine, Singapore)
C Ringsted (University of Toronto and University Health Network, Anaesthesia, Toronto, Canada)

Background: Medical education research should aspire to illuminate the field by moving beyond descriptive ("What was done?") and justification ("Did it work?") research purposes to clarification studies that address "Why or how did it work?" questions. We aim to ascertain the predictors of clarification studies in medical education research.
Summary of work: We conducted a systematic review of all eligible original research abstracts presented at the 2012 Asia Pacific Medical Education Conference. Abstracts were classified as descriptive, justification or clarification using Cook's framework. We collected data on research approach (Ringsted 2012 framework), Kirkpatrick's learner outcomes, statement of study intent, presentation category, topic of study, professional group, and number of institutions involved. Significant variables from bivariate analysis were included in logistic regression analyses to ascertain the determinants of a clarification study purpose.
Summary of results: Our final sample comprised 186 abstracts. Descriptive studies were the most common (65.6%), followed by justification (21.5%) and clarification (12.9%). Clarification studies were more common in non-experimental than experimental studies (18.3% vs 7.5%). In multivariate analyses, the presence of a clear study aim (OR: 5.33, 95% CI 1.17-24.38) and non-descriptive research approach (OR: 4.70, 95% CI 1.50-14.71) but not higher Kirkpatrick's outcome levels predicted a clarification research purpose.
Conclusions: Only about one-tenth of studies have a clarification research purpose. A clear study aim and non-descriptive study research approach each confers a five-fold greater likelihood of a clarification purpose.
Take-home messages: Study aims and research approach are 2 potentially remediable areas to promote clarification studies in medical education research.

3N/2
A Systematic Review of Undergraduate Medical Education in UK General Practice

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Nada Khan (University College London, Department of Primary Care and Population Health (PCPH), London, United Kingdom)

Background: This study aims to systematically identify, summarise and synthesise empirical research about undergraduate medical education in the UK general practice setting. UK medical schools provide 10-15% of their curricula in primary care, costing approximately £100 million / year.
Summary of work: We systematically searched medical and educational bibliographic databases using terms relating to general practice and medical education. Empirical studies about undergraduate medical education in UK general practice were included. A descriptive synthesis will be produced summarising the data, followed by meta-analysis and meta-synthesis approaches where appropriate. During title and abstract screening, we are piloting 'text-mining', which uses techniques including automatic term recognition to improve reviewing efficiency through early identification of relevant records. The relative sensitivity and specificity of traditional double-screening and text-mining in identifying the final set of included papers will be explored.
Summary of results: Database searches retrieved 12477 records for title and abstract screening. We will report the comparison of text mining with manual, double-screening methods along with a descriptive summary of the selected literature, forming the basis for subsequent meta-synthesis and meta-analysis.
Conclusions: This presentation will discuss the utility of text-mining in future systematic reviews, and a descriptive summary of the identified literature. We hope this review will inform future teaching, policy and research through highlighting what knowledge about learning in this context is currently available within the research literature.
Take-home messages: We have conducted a systematic search of the literature on undergraduate medical education in UK general practice and will present a summary of the included literature and discuss the utility of text-mining techniques.

3N/3
Research in Medical Education in Brazil: Strategies to overcome

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Joao J B Campos (Universidade Estadual de Londrina, Medicina, Londrina, Brazil)

Background: After discussions about difficulties in Medical Education publication in Brazil, the Brazilian Association of Medical Education (ABEM) established in 2006 a group (ABEMPG) for promoting and disseminating debates on this topic formalized by publication of the Brazilian National Curriculum Guidelines for Medicine - 2001. The ABEMPG strategies was defined together the Ministry of Health (MS) and in 2010 a policy to create critical mass in research in the field of Health Education launched the bid proposal to open groups and lines of research inside postgraduate programs recognized by the scientific production in specific areas of health.
Summary of work: Seventy projects competed and 31 were selected that began operations in 2011 with a five year strategic plan and provided financial support for its implementation by MS. Two seminars annual monitoring of the projects were carried out.
Summary of results: Benefits are: the large field of research provided by the SUS, the development of new teaching and learning strategies in Universities, the possibility of adding researchers in research groups, prior planning as guiding the actions and the existence of specific resources for the researchers and publications in the area. Problems are, the lack of critical mass in the country, the reality of research associated with teaching and care leading to an overload of tasks, the need to follow standards dictated by foreign scientific journals for publication with impact factor. Strategies to overcome the problems have been the collaborative work between researchers and institutions, the search for experiences in major research centers and inclusion of stakeholders to support new researchers.
Conclusions: There has been a significant increase in the presence of Brazilians in international conferences and published articles in internationally recognized journals in the area.
Take-home messages: A well designed inductive policy can change the research history in developing countries.

3N/4
Strengths and weaknesses in developing a multicentric research network in Medical Education – VERAS Project

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Background: Most studies in Medical Education have been performed in single or few institutions and the subjects have not been randomized. There is an urgent need of high quality multicentric randomized studies.
Summary of work: Most studies in Medical Education have been performed in single or few institutions and the subjects have not been randomized. There is an urgent need of high quality multicentric randomized studies.
Summary of results: Twenty-three Medical Schools and 1350 randomized medical students participated in the study (81.8% response rate). SWOT analysis (strengths, weaknesses, opportunities and threats) showed that the main strengths were motivation of local researchers, support from local institutions, proximity between local researcher and respondents, electronic database, weekly monitoring of respondent status and customized feedback for respondents. Main weaknesses were small core research team, local researchers' work overload and difficulties in motivating students to answer 290 items.
Conclusions: Our response rates were higher than the average found in most of the reviewed multicentric studies (between 50 and 61%). Surprisingly, our losses due to respondent burden were very small. The highly motivated research team and the closed monitoring of randomized students that accepted to participate in the study are the possible explanations. Building a research network to perform randomized multicentric studies has many challenges but it is very important to perform relevant high-quality studies in Medical Education.
Take-home messages: Weaving, keeping and producing a research network in Medical Education is a daily challenge that has been proved possible.

3N/5
When medical education research and web design meet: experiences from a multidisciplinary collaboration

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Background: Survey design, visual layout and social media integration are important considerations in conducting questionnaire research as poorly implemented online surveys may be unlikely to achieve sufficient participant numbers. Online survey services are also often limited in their ability to meet the research objectives of differing studies. Here, we describe our experience of the multidisciplinary design of a large-scale online questionnaire incorporating an interactive careers intervention.

Summary of work: The 'Big Training Survey' (www.bigtrainingsurvey.com) focuses on understanding factors that affect medical students' career decisions. The survey utilises a mixed-method approach to data collection combining quantitative data, social networks analysis, and qualitative analysis from free-text answers. We collaborated with web programmers and designers to build a user-friendly survey, whilst giving participants personalised data outputs to encourage reflection.

Summary of results: Our multidisciplinary approach, using a number of team design tools, enabled us to construct a bespoke online questionnaire and data management system. Process-based design, conscious development of a shared vocabulary and collaborative wireframing were all included in the research design process.

Conclusions: Close collaboration between the academic and web design teams, facilitated by team and workflow management tools, played an important role in building a survey with seamless user interface. We were also able to address technical issues of the survey early and optimise the system for recruitment, data collection and analysis.

Take-home messages: Active involvement of web programmers and designers during research survey development can be beneficial in maximising the usability and appeal of mixed-methods questionnaire studies.

3N/6
Finding the Evidence on Medical Professionalism

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Julie Ash (Flinders University, Health Professional Education, School of Medicine, Adelaide, Australia)

Background: Those interested in teaching, assessing and researching medical professionalism need to be able to identify the published literature in databases. Yet this is challenging as it is widely recognised as a complex and multidimensional construct, with different perspectives and terminologies. Using an innovative approach used in other fields, we developed an OvidSP MEDLINE literature search filter to identify this literature.

Summary of work: Using bibliometrics, frequency analyses and a gold standard comparison approach, we developed and validated a literature search filter using randomised citations identified a priori as relevant from a published critical discourse analysis. The filter's effectiveness was evaluated by calculating how many relevant articles it successfully retrieved.

Summary of results: The filter retrieved 379/596 (63.6%) of the relevant literature, and was translated into a PubMed version. A less sensitive version was also iteratively developed for those less concerned with breadth of search coverage.

Conclusions: The use of a critical discourse analysis means that multiple perspectives about medical professionalism are likely reflected in the filter, and therefore in the literature it retrieves. This study also provides an example of how medical education can benefit from approaches outside of its own field.

Take-home messages: These filters are now available for immediate use by those interested in medical professionalism, and may support further research and practice. This approach may be replicated with other topics of interest such as assessment.

3O Workshop: Training the Trainers to Support Doctors in Difficulty
Location: Meeting Room 3.5, PCC

Liz Spencer (National Association of Clinical Tutors UK (NACT UK))
Alistair Thomson (National Association of Clinical Tutors UK (NACT UK))

Background: Educational supervisors have a key role in identifying and managing doctors in difficulty. With improving assessment and educational supervision a wider, more complex range of issues are being discovered. Supervisors require additional training in knowledge, skills and attitude to enable them to support and remediate these doctors in a structured and timely fashion. NACT UK represents Directors of Medical Education (DMEs) who coordinate Postgraduate Medical Education in UK hospitals. In 2008 NACT UK published a framework for managing these complex situations 1 which has been widely adopted across the UK.   This workshop will demonstrate how the NACT UK document can be embedded within a Faculty Development programme to educate those responsible for supervising these doctors.
Intended Outcomes: To enhance the understanding of what causes doctors to run into difficulties and the importance of adopting a structured systematic approach that is connected to the processes of both the educational programme and the employing hospital.
To encourage educational leaders to provide additional education and support for clinical trainers.
Structure: The key elements of the NACT UK document will be described. A copy will be provided for all participants. Experience of delivering Training the Trainer workshops will be shared. There will be some small group work & sharing of experiences will be encouraged.
Further topics which will be addressed: What factors might affect the performance of a doctor;What "is" and "is not" the role of the educational supervisor; When should the issue be escalated? And to whom?; How to give difficult feedback; What and how to document
Who should attend: This is relevant for all educational leaders, medical trainers and those involved in faculty development. The context will be postgraduate but the principles would be relevant to those involved in undergraduate education.

3P Workshop: Young medical educator workshop: Problematization and Adaptive Action: Authentic learning for a successful career in Medical Education
Location: Meeting Room 4.1, PCC

Regina Helena Petroni Mennin (Universidade Federal do Sao Paulo, Medicine Preventiva, Rua Inhambu 1708, Sao Paulo 04520-015, Brazil)
Stewart Mennin (Mennin Consulting & Associates, Health Professions Education, Sao Paulo, Brazil)
Soeren Huwendiek (University Children's Hospital Heidelberg, General Pediatrics, Heidelberg, Germany)
Charlotte Ringsted (University of Copenhagen and Capital Region, Medical Education, Copenhagen, Denmark)
Zubair Amin (National University of Singapore, Department of Pediatrics, Singapore)
Monica van de Ridder (Albert Schweitzer Hospital, Medical Education, Dordrecht, Netherlands)

Background: The 21st century medial educator has to be capable in many arenas at the same time. Problematization is an approach to learning and problem solving derived from the work of Paulo Freire that is relatively unknown outside of Brazil. Its application is fundamental to learning and living in a constantly changing world in which stability is dynamic and ephemeral.
Intended outcomes: The workshop is focused on participants learning about problematization and adaptive action applied to day-to-day challenges of medical educators. The goal and objective is to introduce this method to address real life problems of the young (new to medical education) medical educators.
Structure of workshop: Following a short introduction to problematization, participants will identify a set of issues/problems and work in groups with shared interests to apply problematization. Groups will share feedback and analysis and synthesis of problematization as adaptive action will summarize the workshop and highlight general principles.
Who should attend: Young medical educators interested in exploring a way to solve problems, learn and integrate the multiple roles and challenges they face every day.
Level: Intermediate

3Q Workshop: Give us a Cue: On Line Tutor Facilitation
Location: Meeting Room 4.2, PCC

Janet MacDonald (Cardiff University, School of Postgraduate Medical and Dental Education, Cardiff, United Kingdom)
Lesley Pugsley (Cardiff University, School of Postgraduate Medical and Dental Education, Neuadd Meirionydd, Heath Park, Cardiff CF14 4YS, United Kingdom
Lynne Allery (Cardiff University, School of Postgraduate Medical and Dental Education, Cardiff, United Kingdom)

Background: The past decade has witnessed a transformation in the provision of on-line learning for medical educators (1). However, tutor emphasis is focused on the interpretation of written material. Little or no attempt is made to compensate for the lack of those all important, non-verbal cues generated between tutors and learners, which can indicate understanding, or the lack thereof, in a face to face environment (2).
Intended outcomes: Participants will be able to:
Analyse on-line student postings
Assess the level of on-line student engagement and understanding
Engage in appropriate on-line educational feedback
Structure of workshop: This highly interactive workshop will explore with participants a variety of different approaches to the facilitation of groups in an online environment. Using examples of text from online group discussions, the workshop provides an opportunity for delegates to work together to both craft facilitator responses to educational questions and queries and subsequently analyse and code these responses.
Who should attend: This workshop is intended for tutors and supervisors who are currently working, or who intend to work, in an on-line educational environment. It is aimed at an introductory to intermediate audience who wish to engage with others in a highly interactive and theoretically informed fun session.
Level: Introductory
(1) Moore, M. Kearsley, G. (2012)(3rd Edition). Distance Education. Wadsworth:Belmont CA.
(2) Fisker, D. Frey, N. (2007). Assessing for Understanding. Association for Supervision and Curriculum Development:USA.

3R Workshop: The use of simulation in clinical assessment - are there limitations?
Location: Meeting Room 2.2, PCC

Doris Ostergaard (on behalf of AMEE Simulation Committee)

Background: The reliable assessment of clinical performance at any stage of medical practice is crucial for maintaining professional standards and providing reassurance to patients. The plethora of competency based curricula and related assessment frameworks developed over the past 50 years have assessed an individual's "shows how" level of Miller's pyramid. The competency assessment tools, OSCE, Case-based discussions DOPS and MiniCEX for example provide evidence of competence but are limited in that they don't reliably assess or predict performance in the workplace. There is evidence from high reliability organizations that simulation can be successfully utilized to both prepare and provide diagnostic evidence of performance in an authentic environment which reflects the workplace. Behaviour marker systems and performance assessment tools are increasingly being piloted. The added value of using authentic simulated environment for assessment is that the focus is entirely on the learner.
Intended outcomes:
1. Understand the benefits and challenges of the use of simulation in assessment
2. Select the most appropriate simulator/SP for the assessment
3. Explore the use of simulated contexts in the diagnostic assessment of performance
Structure of workshop: This 90 minute session will include mini-lectures, video clips and group exercises.
Who should attend: Undergraduate and postgraduate clinical skills and simulation educators involved in clinical assessment
Level: Intermediate

3S Workshop: Developing a caring culture in healthcare: what contribution should be expected from medical education and training
Location: Meeting 3.1, PCC

Lesley Southgate (St Georges University of London, Division of Medical Education and Population Sciences, Cranmer Terrace, London SW17 0RE, United Kingdom)
Judy McKimm (College of Medicine/ Coleg Meddygaeth, Medical Education, Swansea, United Kingdom)
Andrew Grant (Cardiff University Hospital for Wales, Institute of Medical Education, Cardiff, United Kingdom)
Vimmi Passi (University of Warwick Medical School, Office of AoMed ED journal, Warwick, United Kingdom)

Background: During the last year shocking findings about the standards of care in a UK acute hospital were published following a wide ranging inquiry chaired by a High Court judge (The Mid Staffordshire NHS Foundation Trust, Public Inquiry, Chaired by Robert Francis QC). In this interactive workshop the findings that relate to medical education and training will be presented and implications for students, trainees and specialists considered.
Intended outcomes: A report of the workshop will be circulated by the presenters after the conference and input requested from interested participants. This input will include reflection on what was important to them. If the final piece is of sufficient quality it will be submitted to the UK Academy of Medical Educators for publication in its Journal.
Structure of workshop: Activities will comprise
A short introductory presentation to include a brief overview of relevant aspects of the Francis report
Consideration of a real clinical event recorded as a reflection by a senior medical student, using workplace assessments to examine the issues it raises. Role play may be used.
Discussion. What is the meaning of 'caring' and is it part of professionalism?
Finally, the values for medical educators developed by the UK Academy of Medical Educators will be examined in the light of our discussions and recommendations.
Who should attend: This will be of interest to anybody engaged in undergraduate and postgraduate training, or interested in the importance of role models, feedback, or the suitability of using workplace assessment methods to explore attitudes and values. We especially welcome attendees from countries other than the UK.
Level: Intermediate

3T Workshop: How should we evaluate global health education experiences?
Meeting Room 3.2, PCC

David Davies (University of Warwick, Warwick Medical School, Gibbet Hill Road, Coventry CV4 7AL, United Kingdom)
Carmi Margolis (Ben Gurion University, Medical School for International Health, Beer Sheva, Israel)

Background: Should global or cross cultural/underserved population educational experiences be a required component of the curriculum? What unique experiences can learners gain only from unfamiliar cultures and settings, as opposed even to unfamiliar cultures in a familiar setting? How can we evaluate global health (GH) educational experiences in order to determine achievement and appropriate goals for such experiences?
Intended outcomes: An approach to evaluating GH electives/rotations that includes qualitative as well as traditional techniques.
An approach to using evaluation to facilitate development of valid goals for a GH rotation.
A broadened perspective on the question of whether GH rotations should be required.
Structure of workshop: This workshop will be based around a participatory experience in qualitative analysis of the content of global health elective/rotation reports. Facilitated group work will identify themes thought to be important when evaluating global health electives/rotations. Participants will get hands-on experience with a content analysis technique that will use actual reflection and blog texts produced by students on GH rotations from medical schools in different countries. This experience will provide the basis for small and large group discussion that aims to achieve two outputs: an approach to setting goals for GH rotations and an approach to developing an evaluation plan that includes qualitative as well as more traditional evaluation methods. Clearer definition of goals will bear directly on the question of whether or not GH rotations should be required.
Who should attend: Educators and faculty involved in teaching and assessing global health education, as well as those with a general interest in the topic.
Level: Introductory

3U Workshop: The BEME (Best Evidence Medical Education) approach: Finding, evaluating and using evidence to guide education
Location: Meeting 3.3, PCC

Jill Thistlethwaite (University of Queensland, CMEDRS, Herston, Brisbane 4006, Australia)
Simon Guild (University of St Andrews, School of Medicine, United Kingdom)
Yvonne Steinert (McGill University, Canada)
Larry Gruppen (University of Michigan Medical School, United States)
Marilyn Hammick (BEME, United Kingdom)
Trevor Gibbs (AMEE, United Kingdom)

Background: The BEME Collaboration is a unique initiative within the field of health professional education and is both a national and international enterprise. It is now more than ten years old and has published 20 systematic reviews of health professional education activities, with several reviews in progress. BEME is committed to the promotion of evidence-informed policy and practice in health professional education through the production of appropriate systematic reviews of health professional education, which reflect the best evidence available and meet the needs of the user. In this workshop we will explore how evidence is gathered and evaluated, and discuss how evidence may best be used to guide education.
Intended outcomes: An understanding of the nature and scope of the BEME collaboration and published reviews
Understanding of how reviews are or may be used to guide education
Structure of workshop: Introductions, experience and expectations
Brief summary of the work of BEME
A brief overview of how a review is undertaken – from question to publication
Facilitated discussion of published reviews – how may they, or how have they, been used by participants?
What would make reviews more user-friendly?
Participants to pick one review and discuss in groups how they may use the findings in their own work
Feedback to large group
Summary and evaluation
Who should attend: Health professional educators who have seen, are interested in and/or produce BEME systematic reviews.
Level: Intermediate

3V Workshop: Digital curation: What, why and how?
Location: Room A, Holiday Inn

Anne Marie Cunningham (School of Medicine, Cardiff University, Institute of Primary Care and Public Health, 3rd Floor, Neuadd Meirionydd, Heath Park, Cardiff CF14 4XN, United Kingdom)
Duncan Cole (School of Medicine, Cardiff University, Institute of Molecular & Experimental Medicine, Cardiff, United Kingdom)

Background: Students can feel overwhelmed with the rising amount of publicly available content which is free to access online. Digital curation sites allow educators to select the online content which they see as most relevant to their students. It is not just about producing a list of weblinks but adding value by explaining to students what is particularly good about the resource and what the weaknesses might be. Students can also be curators.
Intended outcomes: To be familiar with the concept of digital curation and some of the tools which are available
To consider how to use and embed digital curation within existing curriculum
To develop a network of those interested in researching digital curation in medical education
Structure of workshop: This workshop will be highly participative. We will explore the relationship between traditional reading lists, bookmarking tools and curation tools and how they are used by participants.
We will share idea on how curation tools can be used to develop critical thinking skills and information literacy, and how this fits with participants' current practice.
We will tell the story of how digital curation has been introduced in our medical course and share some of the lessons we have learned on what works to enable curators.
The final part of the workshop will consider how curation fits conceptually with approaches such as problem-based learning, and some of the common causes of resistance to curation as a method.
Who should attend: Students, educators and administrators interested in developing skills in digital curation.
Level: Introductory

3W Workshop: Doctoral education: Establishing communities of practice to support the development of 'doctorateness'
Location: Room B, Holiday Inn

Juanita Bezuidenhout (Stellenbosch University, Centre for Health Professions Education, PO Box 19063, Tygerberg, Cape Town 7505, South Africa)
Susan van Schalkwyk (Stellenbosch University, Centre for Health Professions Education, Cape Town)

Background: Green (2005:153) has argued that "doctoral education is as much about identity formation as it is about knowledge production …" describing the process as being "fraught with tension, uncertainty, ambivalence". Exploring ways in which this dissonance might be addressed and thereby foster success is the focus of this workshop which will provide participants with the opportunity to consider how the journey to 'doctorateness' can be enabled. Lessons learnt through facilitating monthly discussion groups for doctoral candidates serves as a catalyst for the discussions. Drawing on the work of Boud and Lee (2005) who describe the value of 'peer learning' within a particular research community, the discussion groups have been built on a reciprocal relationship that sees each member becoming a 'doctoral peer'.
Intended outcomes: By the end of the session participants will be able to: 1) describe the doctoral journey from a renewed perspective; 2) recognise the value of peer engagement and psycho-social support during advanced studies; 3) establish their own doctoral communities of practice for candidates in their institutions.
Structure of workshop: This workshop will be interactive and participatory. After presenting an overview of the rationale for the discussion groups, small group exercises will provide the opportunity for application across the different contexts represented by the participants. These discussions will be interspersed with plenary sessions and a sharing of ideas with regard to challenges experienced by the modern day doctoral candidate.
Who should attend: Academic staff involved in postgraduate supervision will benefit while advanced doctoral candidates would also find the workshop of value.
Level: Intermediate

3X Workshop: Humour, horror and the supernatural: making learning fun
Location: Room D, Holiday Inn

Tarun Sen Gupta (James Cook University, School of Medicine and Dentistry, Angus Smith Drive, Townsville 4811, Australia)
Victoria Brazil (Bond University, School of Medicine, Gold Coast, Australia)
Harry Jacobs (James Cook University, School of Medicine and Dentistry, Mackay, Australia)

Background: Educators often look to teach in ways that are innovative, fun, and stimulating – for their audience and themselves. Clinicians use humour, yet, while the medicinal benefits of humour are well recognized, the literature on its use in health professional education is sparse.
Intended outcomes: Participants will emerge (they have no choice, and yes, we expect that most will emerge) from this workshop refreshed and stimulated, with some creative and innovative ideas for their own setting. And, they may even be able to make the teaching of [name deleted due to political correctness but insert your most boring topic] fun!
Structure of workshop: This interactive workshop will explore the use of techniques such as humour in health professional education. Participants will discuss:
where humour is – and is not – appropriate,
sources of humour, its roles in teaching and possible applications in their own educational setting
other techniques such as challenging learners with confronting or unsettling themes
attitudes and approaches to risk-taking in small and large group education.
Who should attend: This workshop will be of interest to educators at all levels, from all disciplines, and all continents, who are interested in making learning fun, making fun learning, making fun, learning fun, making, learning, or fun. A workshop for all seasons!
Level: Intermediate

3Y Meet the Experts: Assessment, Measurement & Mobile Technology
Location: Meeting Room 4.3, PCC

*Godfrey Pell, Richard Fuller, Matthew Homer
(Assessment Research Group); Gareth Frith (Technology
Enhanced Learning Manager), Leeds Institute of Medical
Education at the University of Leeds, UK*

Our philosophy is born of a continuous, quality improvement process that has seen ongoing improvements within assessment in our undergraduate Medicine degree programme and informed a programme of research in key areas of Assessment & Measurement. Our main areas of expertise relate to the OSCE (including quality improvement), the theory, design and delivery of successful sequential testing, the use of item response theory in relation to written testing, and workplace assessment, including application of assessment for learning theory. The Learning Technology team's areas of expertise relate to the support of students in clinical practice through an innovative programme which helps them to develop their learning skills from clinical experience alongside a programme of workplace assessment delivered by smartphones. Come and see us to discuss your assessment and mobile technology related issues. No appointment necessary!

3Z Posters: Student Characteristics and Learning Style

Location: South Hall, PCC

3Z/1

Factors determining creativity in medical students

Chaichana Nimnuan (Chulalongkorn University, Psychiatry, Rama IV rd, Patumwan, Bangkok 10330, Thailand)
Jakaphan Jatupornphan (Chulalongkorn University, Psychiatry, Bangkok, Thailand)

Background: Creativity is an important attribute of medical students. Creativity helps improve physicians' ability to think and provide effective care to patients. To enhance students' creativity, factors determining creativity have been identified.
Summary of work: Eight hundred and sixty one medical students from the first to fifth year at Chulalongkorn university were recruited. Creativity, personality, gender, age, academic year, GPA, and parental education level were assessed using standard questionnaires. Predictors of creativity were examined by multiple regression analysis.
Summary of results: Of all statistically significant predictors of creativity, intellect dimension of personality was the strongest (Beta=0.620, p<.005). Extraversion, Conscientiousness dimension of personality, and male sex were also significantly associated with an increased creativity score. GPA, academic year, parental level of education and also emotional stability dimension did not significantly contribute to creativity. All four factors explained 60% of total variance (F=315.11, p<.005).
Conclusions: It is very likely that personality dimensions such as intellect, extraversion, and conscientiousness have a positive effect on creativity.
Take-home messages: As young adults, to improve some aspects of personality may help increase creativity among medical students.

3Z/2

Tendency of Students' Motivation throughout the Medical Course at the Faculdade Pernambucana de Saúde, Recife, Brazil

Eduarda Ribeiro (Instituto de Medicina Integral Professor Fernando Figueira (IMIP), Faculdade Pernambucana de Saúde (FPS), Department of Medical Education Research, Avenida Boa Viagem, 3854/601, Rua dos Coelhos, 300, Boa Vista, Recife 51021-000 / 50070-550, Brazil)
Raíssa Lyra (Instituto de Medicina Integral Professor Fernando Figueira (IMIP), Faculdade Pernambucana de Saúde (FPS), Department of Medical Education Research, Recife, Brazil)
Gilliatt Falbo (Instituto de Medicina Integral Professor Fernando Figueira (IMIP), Faculdade Pernambucana de Saúde (FPS), Department of Medical Education Research, Recife, Brazil)
Hegla Prado (Instituto de Medicina Integral Professor Fernando Figueira (IMIP), Faculdade Pernambucana de Saúde (FPS) , Department of Medical Education Research, Recife, Brazil)

Background: Motivation is the process responsible for the intensity, direction and persistence of a person's effort to achieve a particular goal. It's a major determinant of success and quality of learning in the academic context and to investigate it must be of interest to those involved in curriculum planning.
Summary of work: We performed a prospective study, type pseudo-cohort, where students had their motivation assessed by the Academic Motivation Scale (EMA), proposed by Vallerand et al., at three different times: at the end of the second year (2Y), at the end of the fourth year (4Y) and at the end of the sixth year (6Y). To compare global scores for the three different moments we applied ANOVA test and multiple comparisons were treated by Tukey test. The reliability of data were analyzed with Cronbach's alpha index.
Summary of results: In comparing the results of students' motivation in the 6Y with the results of students in the 2Y and 4Y, there was a statistically significant decrease for intrinsic motivation and an increase for extrinsic motivation and demotivation. The global score (0-100) was: 2Y=49; 4Y=85; 6Y=88 (p<0,001 for 2Yx4Y and 2Yx6Y and p=0.323 for 4Yx6Y).
Conclusions: The findings showed satisfactory levels of motivation for the study subjects. There was a slight change in the degree of students' motivation throughout the course, with more changes in the composition than in the intensity of it. This may be related to a satisfactory degree of motivation still in the preclinical phase, possibly due to the curriculum model based on active methods.
Take-home messages: It is important to determine the medical students' motivation so that faculty can provide strategies to support and advise its students when necessary.

3Z/3

Factors associated with medical students' clinical performance

Hye Won Jang (Sungkyunkwan University School of Medicine, Social and Preventive Medicine, 50 Irwon Dong Gang-nam Gu Seoul 135-710, Korea, Republic of (South Korea))
Kyong-Jee Kim (Sungkyunkwan University School of Medicine, medical Education, Seoul, Korea, Republic of (South Korea))
Yon Ho Choe (Sungkyunkwan University School of Medicine, Pediatrics, Seoul, Korea, Republic of (South Korea))
Chang-Dae Bae (Sungkyunkwan University School of Medicine, Molecular Cell Biology, Suwon, Korea, Republic of (South Korea))

Background: This study aims to identify cognitive and non-cognitive factors associated with students' clinical performance.

Summary of work: A theoretical framework was developed which included both cognitive and non-cognitive factors influencing student clinical performance. A questionnaire was administered to Year 4 students in Skyunkyunkwan Medical School on their motivational beliefs (self-efficacy and task value) and achievement emotions (enjoyment, anxiety, and boredom) on Clinical Performance Examination (CPX), as well as a shortened Korean version of TCI (Temperament and Character Inventory). 38 students completed both questionnaires (response rate = 95%). Student responses were linked to their performance in CPX using standardized patients, which assessed students' history taking and physical exam skills, performance in patient education and patient-doctor relationship, and overall impressions.

Summary of results: Students' history taking skills were significantly associated with their GPA in Year 3 and their physical exam skills were significantly associated with their levels of harm avoidance and cooperativeness (p < .05). Students' performance in patient education was significantly associated with their levels of self-efficacy on CPX, and their patient-doctor relationship scores were significantly associated with their reward dependence levels (p < .05). Students' overall performance rating was significantly associated with their harm avoidance levels (p < .05). Student CPX scores were not significantly associated with their Year 3 GPA.

Conclusions: Our findings suggest that students' abilities to conduct physical exams on patients, educate them and establish good relationships with them are more significantly associated with their self-efficacy levels and personality traits than are with their academic performance.

Take-home messages: Personality traits are important factors associated with medical students' clinical performance.

3Z/4
Association between social-demographic and academics factors with expectations in medical students of Chile

Liliana Ortiz (University of Concepcion, Medical Education Department, Concepcion, Chile)
Cristhian Perez (University of Concepcion, Medical Education Department, Concepcion, Chile)
Carolina Marquez (University of Concepcion, Medical Education Department, Concepcion, Chile)
Paula Parra (University of Concepcion, Medical Education Department, Concepcion, Chile)
Olga Matus (University of Concepcion, Medical Education Department, Concepcion, Chile)
Eduardo Fasce (University of Concepcion, Medical Education Department, Concepcion, Chile)
(Presenter: **Javiera Ortega**, University of Concepcion, Medical Education Department, Victor Lamas 1290, Barrio Universitario, Concepcion 4070386, Chile)

Background: Diverse studies have mentioned the influence that academic factors and social-demographics have on the performance of students. Nevertheless, studies have not given emphasis to analyzing the relationship between students' expectations and the factors before mentioned. Knowing these relations might be fundamental for educational interventions.

Summary of work: The aim of this study was to identify the relationship between the social-demographic and academic factors and the academic expectations of medical students. 184 students of three Chilean universities were assessed, 98 (53,26%) were men and 86 (46,7%) women. The Academic Scale of Expectations was answered and academic background was obtained from the university database, with previous informed consent.

Summary of results: The results indicated that students with better score on school performance have higher expectations with teachers, the relationship with classmates and the academic resources. Students of a particular subsidized school present higher expectation of teaching.

Conclusions: The relationship between some academic backgrounds and social-demographic factors with expectations allows us to observe the importance that university teaching can exercise on the form to which the students adapt. The ability to explain certain processes as to how students live during their adaptation process allows the generation of diverse tools of support.

Take-home messages: Students' expectations influence their performance and wellbeing.
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3Z/5
Tackling differences in confidence levels between male and female medical students

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Polly Robinson (King's College Hospital, Denmark Hill Teaching Group, London, United Kingdom)

Background: Female medical students are less confident than their male counterparts [Blanch et al 2008]. Self-confidence in medical students is important as it increases self-identification with the role of doctor and external perceived trust in ability. We piloted a teaching method designed to boost confidence levels in medical students to address this inequality.

Summary of work: Third year medical students (n=62) attended an interactive lecture in interpreting a full blood count followed by small group teaching. They were asked to use a ten-point Likert scale to report their confidence before and after the workshop, as well as rating their overall self-confidence.

Summary of results: Male medical students rated themselves as significantly more confident than female medical students (6.7 compared to 5.8, p<0.05). However all students reported an increase in their confidence in interpreting a full blood count (mean increment 55%, p<0.0001). Moreover self-assessed confidence levels in their ability after the teaching was

comparable between the sexes (6.6 in males, 6.8 in females).

Conclusions: This workshop was effective in improving the confidence levels of both male and female medical students in a clinically important task. Given the validated gender discrepancy in confidence, hospitals and medical schools should provide support and training to boost the confidence of women early in their careers. We suggest this workshop provides a framework for one possible intervention.

Take-home messages: Women are less self-confident than men. To address this inequality, medical schools should employ a range of methods specifically aimed at women to increase confidence. This will make them better doctors and ultimately improve patient safety.

3Z/6
Gender Equality in Undergraduate Clinical Medical Education - Are We There Yet?

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Niclas Lewisson (Institution of Surgical Sciences, General Surgery, Uppsala, Sweden)
Jakob Johansson (Institution of Surgical Sciences, Anesthesiology and Intensive Care, Uppsala, Sweden)

Background: Historically, medicine has been a male-dominated profession. However, today the majority of medical students in Sweden are female. The aim of this study was to evaluate possible gender differences regarding medical students' perception of the quality of clinical teaching during rotations.

Summary of work: We used a pre-existing online assessment tool consisting of ten questions reflecting different aspects of clinical teaching (Likert scale 1-6). Students from all 25 different clinical rotations at Uppsala Medical School in Sweden were included in the survey (n=509, female n= 282, male n=217). Assessments were collected during autumn semester 2012.

Summary of results: In total, 1703 student evaluations were collected (female n=1004, male n=699). The response rate was 70%. The mean rating±SD by female students was 4.34±1.12 and by male students 4.36±1.04 (p=0.98). Analysing the ten questions separately revealed differences in ratings regarding students' awareness of expected learning outcomes (female 4.70±1.13, male 4.49±1.16, p<0.001) and amount of feedback received (female 3.90±1.64, male 4.13±1.52, p=0.01).

Conclusions: There was no overall difference in perceived quality of clinical teaching between female and male students. However, female students rated their knowledge about expected learning outcomes higher, while male students experienced more feedback from their clinical tutors.

Take-home messages: In a Swedish setting, we found no overall difference in perceived clinical teaching quality between genders. However, some specific aspects were found to be different, which inspires further efforts towards increased gender equality in clinical medical education.

3Z/7
Third gender in Medical Students: Are there any difficulties?

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Background: The number of the third gender in medical students has increased. As they are rather sensitive, do they have more problems than the other medical students? To answer these questions, a blind survey was done under the approval of the ethics committee and medical students committee.

Summary of work: From 1st January to 28th February 2013, 139 questionnaires were sent to 4th, 5th and 6th year medical students in Lampang Hospital, asking about their difficulties in four aspects: 1) gender and sexual behaviour; 2)Learning and patients care; 3)Relationship with their friends; and 4) Social and patients' acceptance. Data were analyzed using descriptive statistics.

Summary of results: Of all 65 completed questionnaires, 17 students (26.2%, 15 men and 2 women) accepted themselves as gay and dee, respectively. Among this group, ten (58.8%) chose IMAGE as the biggest problem while another 37 students (from 48, 77.1%) chose LEARNING. The parents of 12 gays knew their situation, 10 accepted but 2 opposed. 14 gays (82.8%) said that their colleagues knew and worked happily with them, got along with the same answer from another group (83.1%), 100% were sure that they had no patient care problems. When they had any difficulties, both groups preferred to consult their friends (83.08%). 90% said their pastime was playing on the internet. Only one man insisted on an operation for transgender.

Conclusions: Third gender has no effect on their study and patient care but they should be careful with their expression.

Take-home messages: Most of the students accepted their friends whatever gender they are and 3rd gender has no more difficulties than usual.

3Z/8
Gender awareness of medical students in one university of Taiwan

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Mei-Chun Hsiao (Chang Gung Medical Center, Department of Psychiatry, Taoyuan, Taiwan)

Background: In the medical area, most cases of health status and health care utilization are the combinations of social and biological causes. Since the importance of sex and gender in the health field is acknowledged, we should emphasize gender awareness in medical education. Therefore, we need to know students'

attitude toward gender differences and stereotypes. The goal of this study is to find out the attitude to gender among medical students in Taiwan.

Summary of work: In this cross-sectional study, 265 medical students voluntarily filled out a questionnaire with the Netherlands constructed scale, Nimegen Gender Awareness in Medicine Scale (N-GAMS). Exploratory factor analysis was used to assess construct validity. Linear regression was used to analyze the influences of socio-economic variables.

Summary of results: Female students held fewer stereotype to patients than male. Mothers' education level and working status influenced the stereotypes to patients and doctors respectively. Students who joined a selective course about gender showed much more stereotypical to patients and doctors.

Conclusions: Students' gender awareness may be affected by sex, socio-economic background, and selective course. When designing training about gender for medical students, we should consider their socio-economic background in different countries and cultures.

Take-home messages: The scale needs to modify the items to evaluate gender awareness appropriately. Gender and background would influence medical students' gender awareness; therefore, the gender-related courses need to be designed from country to country. The designed courses should play a role as stimulus which helps students to notice the gender issues around us in our daily lives.

3Z/9
Students' approaches to learning and factors related to the changes or stability of the deep approach during a pharmacy course

Maaret Varunki (University of Helsinki, Faculty of Pharmacy, Helsinki, Finland)
Nina Katajavuori (University of Helsinki, Faculty of Pharmacy, P.O.Box 56 (Viikinkaari 9), Helsinki 00014, Finland)
Liisa Postareff (University of Helsinki, Helsinki University Centre for Research and Development of Higher Education, Faculty of Behavioral Sciences, Helsinki, Finland)

Background: The deep approach to learning implies trying to integrate information to prior knowledge. Students applying a surface approach concentrate mostly on rote learning. The surface approach students concentrate mostly on rote learning. This approach seems to be more common among students in natural science like pharmacy. Students can also try to manage their studies by utilizing organised study methods.

Summary of work: The aim of this study was to explore variation in pharmacy students' approaches to learning, how approaches change during a course and to analyse factors related to the changes in deep approach to learning. The first year students (n=84) filled in a questionnaire (revised version of ALSI) at the beginning and at the end of a course and 14 students were interviewed after the course.

Summary of results: The results revealed significant changes in deep and surface approaches to learning and organised studying during the course at group-level. However, analyses at the individual level revealed variation in the amount and direction of change. Self-regulation skills, motivation, goal-orientation and perceived workload explained the changes and stability of the deep approach.

Conclusions: The findings suggest that good self-regulation skills and intrinsic motivation supported the adoption of the deep approach to learning. Students show individual changes in the amount and direction of change in the approaches to learning. Especially self-regulation skills are related to the changes in approaches to learning.

Take-home messages: It is essential to enhance the adoption of the deep approach. Supporting self-regulation skills, motivating the students and appropriate workload should be taken into account in teaching.

3Z/10
Use of a learning strategies inventory to assess strategies used by matriculating medical students

Nitsa Topale (St. George's University, Dept. of Educational Services, Box 7, St. George's, Grenada)

Background: Student support professionals seek to find effective ways to accurately assess the needs of their students in order to design targeted programming for the students they serve. Medical students function at a high level and typically have well developed learning strategies that resulted in past academic success.

Summary of work: For this study, the Learning and Study Strategies Inventory (LASSI) was used to obtain information regarding matriculating medical students' strengths and weaknesses as learners. It was anticipated that the results of the survey would not only indicate the effectiveness of using this inventory with students in professional programs, but also paint a clearer picture of the learning and study strategy strengths and deficiencies of new students.

Summary of results: The LASSI proved to be a reliable tool for assessing matriculating medical students' strengths and weaknesses as learners.

Conclusions: Individual results of the LASSI offered valuable information for medical students to develop their own learning strategies either independently or with the assistance of a learning strategist. Analysis of LASSI results also enabled student support practitioners to obtain a picture of the matriculating cohort's learning weaknesses to ensure that programming matched students' needs.

Take-home messages: The LASSI was an effective diagnostic tool for assessing medical students' learning and study strategies and provided valuable information for student support practitioners and program coordinators.

3Z/11

The behaviours and attitudes of Thammasat preclinical medical students towards Self-directed learning

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Wisree Wayurakul (Thammasat University, Family Medicine, Bangkok, Thailand)

Background: Students are expected to study on their own during self-directed learning (SDL) sessions. As a matter of fact, students may prefer designing their learning process consistent to their learning style instead of being told how and when to study.
Summary of work: A descriptive survey study focusing on students' levels of understanding SDL included with their behaviours and attitudes towards teachers-arranged SDL sessions were conducted. Self-administered questionnaires from 228 of 343 preclinical medical students (66.47%) were collected and thus evaluated.
Summary of results: A mean score of students' levels of understanding SDL was 5.81, from a perfect score of 10. Of various activities of utilizing SDL sessions, 36.62% of medical students reviewed classroom materials including own lecture notes while 40.35% found topic-related discussion among classmates was helpful. However, 13.16% failed to engage themselves in learning activities. Majority of students reported more SDL sessions during the exam week was needed. Supplementary materials such as self-evaluation questions with answers and full explanations were considered to enhance the SDL process. Several students viewed the SDL session as a free period in which they should be free to run their own errands.
Conclusions: Despite the average understandings of SDL, preclinical medical students at Thammasat University tend to utilise SDL sessions for reviewing their lecture notes during the exam week while they took those sessions during rotations for granted.
Take-home messages: Teachers are strongly recommended to educate students well about the objective of SDL sessions and to facilitate how students can optimize their self-directed learning skills.

3Z/12

The use of a learning style and motivational test to induce student results at the VUB Life Science Campus

Pascale Petit (Vrije Universiteit Brussel (VUB), The Study Guidance Center - Life Sciences, Brussels, Belgium)
Katrien Vanderstappen (Vrije Universiteit Brussel (VUB), The Study Guidance Center - Life Sciences, Laarbeeklaan 103, Brussels 1090, Belgium)
Eveline Bruneel (Vrije Universiteit Brussel (VUB), The Study Guidance Center - Life Sciences, Brussels, Belgium)
Bart Rombaut (Vrije Universiteit Brussel (VUB), Pharmaceutical Institute, Brussels, Belgium)

Background: LeMo (Learning style and Motivational test, Plantijn Hogeschool & EduBROn, 2010) was introduced at the VUB in 2011. This instrument provides students with feedback about their learning styles and motivation.
Summary of work: Students at the VUB Life Science Campus are asked to complete the LeMo test during their first months in higher education. The aim of this questionnaire is to determine whether certain learning skills, important for achieving good results, are present. We use this test because each student receives an individual feedback report immediately after filling out the questionnaire. This report contains further information and tips about personal learning skills and learning motivation. Student counsellors can use these reports to adjust their counselling style to the personal needs of students and thereby prevent possible drop-outs.
Summary of results: Through an analysis of the participation rate we can conclude that embedding this questionnaire in an existing course is necessary to point out the importance of reflection to students.
Conclusions: We have to continue this test for several more years in order to get a clear view of how students deal with reflection on these important learning skills. A comparative study between the different programmes at our campus will be necessary to search for our students' key features and to analyse the impact of counselling activities on learning skills.
Take-home messages: Within the study guidance programme, the LeMo test should be the starting point for profound reflection about learning. We hope that students will become more aware of the importance of certain learning skills.

3Z/13

A comparative study on the factors related to the quality of life between medical and non-medical students in Korea

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Ie-Byung Park (Gachon University School of Medicine, Internal Medicine, Incheon, Korea, Republic of (South Korea))
Woo-Jin Chung (Gachon University School of Medicine, Internal Medicine, Incheon, Korea, Republic of (South Korea))
Jun Yim (Gachon University School of Medicine, Preventive Medicine, Incheon, Korea, Republic of (South Korea))
Background: Medical students are more exposed to the stresses such as excessive academic load and competition, and lack of sleep than general university students. This study aimed to compare the factors related to the quality of life **between medical and non-medical students.**
Summary of work: 609 medical students and 396 non-medical students participated in the surveys in 2012. The questionnaire consisted of the items about

socio-demographical characteristics, the quality of life (WHOQOL-BREF-Korea version), stress, stress coping, self-esteem, and social support. The collected data were analyzed with t-test, ANOVA, and multiple-regression analysis.

Summary of results: The medical students recognized their quality of life was lower than the non-medical students, and the recognition difference was found the highest between the first grade students of both groups. No significant gender difference was found in the medical students, but female non-medical students reported higher quality of life than males. No significant difference in stress and self-esteem between medical and non-medical groups was found. Non-medical students had higher scores in stress coping than the medical students and in both groups, females showed higher coping stress than males. In social support, the medical students perceived more faculty support than the non-medical students. Stress (β=-0.320) and stress coping (β=0.144) affected the quality of life of medical students (R^2=13.4%), while stress (β=-0.184) and self-esteem (β=0.373) gave an influence on non-medical students (R^2=23.8%).

Conclusions: There were differences in the quality of life and its related factors between medical students and non-medical students. Therefore, to improve the quality of life of medical students, programs need to be developed for medical students to manage and cope with their stress.

3Z/14

Are theoretical competences predictive for good clinical skills?

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Michael Melin (Karolinska Institutet, Institution of Medicine Huddinge, Stockholm, Sweden)
Hans Gyllenhammar (Karolinska Institutet, Institution of Medicine Huddinge, Stockholm, Sweden)

Background: Theoretical knowledge, practical skills, professional attitude and personal development are the core competences of a physician. Assessing these competences in medical student is an important challenge. A large body of research and experience exist in this field resulting in mostly well-defined methods for examination of theoretical knowledge and practical skills – usually in separate forms. Assessing the combinations of competencies is considerably more challenging. As part of a reform in examinations we asked to what extent different competencies influenced each other.

Summary of work: 34 students in the course Clinical Medicine were followed for several weeks of clinical rotations. Experienced clinical teachers assessed the student´s skills weekly. Outcome, number of comments "good" or "need of improvement", was compared with results from theoretical examinations.

Summary of results: Preliminary results indicate that students performing well in early theoretical exams had superior results in the evaluation of clinical rotations than students with poor results. During the latter part of the course this difference disappeared.

Conclusions: Good theoretical performance may predict a good clinical performance. However, this is not a static phenomenon. Our data indicate that it may be a question of speed of learning and that theoretical underperformers obtain necessary skills and competences in the end of a course. More data and more variables are needed for firm conclusions and also for mechanistic explanations.

Take-home messages: It is never too late. Students that are slow starters will essentially catch up with students that prove high competence early in the course.

3AA Posters: Interprofessional Education 1

Location: Terrace 2, PCC

3AA/1
Implementing a new interprofessional peer-led simulation program for final year medical and nursing students: lessons from a three-part pilot

Zachary Ferguson (Barts and the London School of Medicine and Dentistry, Medical Education, Connaught Hall, 36-45 Tavistock Square, London WC1H 9EX, United Kingdom)
David McQuade (King's Health Partners London, Simulation and Interactive Learning, London, United Kingdom)
Peter Jaye (King's Health Partners London, Simulation and Interactive Learning, London, United Kingdom)
Della Freeth (Queen Mary University London, Barts and the London School of Medicine and Dentistry, London, United Kingdom)

Background: Simulation-based learning (SBL) for clinical and non-technical skills and peer-led learning are increasingly common in undergraduate medical and nursing education, although peer-led SBL is rare. In 2012, King's College London increased medical students' access to SBL by introducing optional peer-led sessions for final year medical students. The next stage of development involved making these sessions interprofessional in 2013.
Summary of work: A pilot program of three interprofessional learner-led SBL sessions for final year medical and nursing students focused on the acutely unwell patient. Three student facilitators (1 medical, 2 nursing) were supported to facilitate SBL scenarios for 11 peers. Evaluation logged the development process and collected data using participant questionnaires, observations and facilitator interviews. Framework analysis guided qualitative data analysis.
Summary of results: Inter-school communication and timetable challenges limited recruitment to pilots. Participants evaluated sessions positively and particularly valued interprofessional learning in a safe non-judgemental environment. Peer facilitation was considered effective, but facilitators experienced difficulty in managing interprofessional conflict and encouraging reluctant participants.
Conclusions: Interprofessional simulation-based learning (IPSBL) is valued, but medical and nursing curricula have different structures, cultures and timelines, which, along with limited channels of inter-school communication, produce practical and cultural barriers. While the absence of faculty allowed for transformative discussion about interprofessional roles and interactions, peer facilitators need training and support to be effective. Extending SBL to become ISBL is worthwhile: the program is being rolled out in full next academic year.
Take-home messages: Successful ISBL which spans schools needs a champion from each discipline.

3AA/2
A qualitative educational study investigating the symbiotic learning relationship of paramedic mentors and medical students within the Prehospital Care Programme

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Danë Goodsman (Barts and the London School of Medicine and Dentistry, Queen Mary University of London, Centre for Medical Education, London, United Kingdom)

Background: With Prehospital Care becoming a recognised sub speciality, the requirement for training programmes has been recognised. Barts and the London School of Medicine and Dentistry has successfully run a longitudinal student selected component offering their students hands on experience within this field, under the mentorship of paramedics. The benefits gained by student mentees are numerous.
Summary of work: This study investigates the effects of the interprofessional mentoring relationship from the perspective of the Paramedic mentor. Questionnaires were designed for both students and mentors. These examined attitudes around teaching and learning opportunities on observer shifts, and their views on how the teaching dynamic changes over the four year placement. Opinions were further explored through student focus groups and semi structured interviews with mentors.
Summary of results: Thematic analysis demonstrates a symbiotic relationship. Paramedics benefit from the extensive science bases of their student observers. More junior students felt they lacked the knowledge to 'teach' their mentors. We demonstrated experience is not a prerequisite in order for teaching to occur. Both student and paramedic can learn from the different 'motivations' and 'approach' each one takes towards a patient. Both enjoy the interprofessional nature of teaching.
Conclusions: Paramedics learn from medical student mentees. This programme does not simply benefit medical undergraduates. Mentors engage more deeply in reflective processes when encouraged to debrief jobs with medical student observers. Medical students benefit from their mentors in terms of learning practical skills. As the student becomes more competent, the dynamic shifts and the paramedic begins to benefit from the higher order conceptual thinking acquired by the medical student throughout the programme.
Take-home messages: Interprofessional mentoring of undergraduates needs to be explored further to see if these benefits are transferrable to other professions

3AA/3
What characterizes and facilitates students' learning at an interprofessional training ward – a qualitative study

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Background: Active interprofessional patient based learning in a real ward context is effective to increase collaborative and professional competence among students. However, less is known on how.
Summary of work: The aim was to explore medical-, nurse-, physiotherapy- and occupational therapy students' perspectives on their own learning during a two-week course at an interprofessional training ward (IPTW). We performed a qualitative content analysis on free text answers on a random sample of student questionnaires from the years 2004 to 2011.
Summary of results: 333 answers representing all four professions were included. Three themes emerged, where nr 1 leads to 2 and 3. (1) A prosperous learning environment including authentic patients in authentic care, competent supervision, complete student teams and enough space for learning. (2) Professional maturity underpinned by personal development with increased self-confidence and ability to grow into ones future professional role. (3) Maturity as an interprofessional collaborator supported by faith in others competence and support, communication skills, understanding of the value of collaborative patient care.
Conclusions: Learning at an IPTW, when given good prerequisites, helps students to mature personally, professionally and interprofessionally. Students obtain motivation and faith in oneself as a future professional interacting in a healthcare community.
Take-home messages: A safe, supporting and permissive culture at an IPTW is an excellent learning environment to become a professional.

3AA/4
Encouraging collaboration between doctors and veterinarians – A zoonosis workshop for clinical students

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Background: Control of zoonotic disease outbreaks requires collaboration between infectious disease experts in both animal and human health. Contact between the medical and veterinary professions is usually limited, and awareness of each other's knowledge can be minimal. This limits the desire to collaborate, and is largely driven by current teaching programmes that keep veterinary and medical education separate, despite the overlap of many aspects of each curriculum.
Summary of work: A zoonoses workshop was designed to enable clinical medical and veterinary students to study and learn together. The 2hr workshop involved an interactive quiz, small group discussions and a 'real-time' outbreak scenario, and was facilitated by infectious diseases physicians, veterinarians and a Consultant in Communicable Disease Control.
Summary of results: A total of 32 students participated, 17 vets and 15 medics. Participating students showed an increase of 1.0 on a 5-point Likert scale for confidence in management of zoonoses. The workshop also achieved an increase of 0.9 for student understanding of the roles of medics and vets in zoonoses outbreaks. The most common suggested improvement was for the event to be longer, and 97% would recommend the event to their peers.
Conclusions: Student understanding of zoonoses identification and management was significantly improved by the workshop. Excellent team-work was shown between medical and veterinary students, and students and facilitators alike were impressed by the level of knowledge shown by members of the alternative profession.
Take-home messages: Medical and veterinary students can be taught together to successfully learn about zoonotic disease and the importance of inter-professional collaboration.

3AA/5
The K in "KSA" stands for knowledge: Strategies to assess learners' knowledge of the IPE competencies in an IPE curriculum

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Background: Interprofessional education (IPE) occurs when learners from two or more professions learn with, from, and about each other in order to promote collaborative care. In most IPE curricula much effort is extended to measure learner attitudes about collaborative care, and their skills. But knowledge – the "K" in KSA (knowledge, skills, attitudes) – is often overlooked.
Summary of work: Over 1000 first year health professional learners from 13 professions participate in our IPE curriculum which is delivered using PBL. In order to ensure that knowledge as well as attitudes and skills

were adequately assessed, we developed an assessment strategy that included objective written exams.

Summary of results: Written exams effectively assessed knowledge of IPE competencies. Exam questions were sufficiently challenging, relevant, and efficient to grade with a large enrollment. Exams were administered to over 1000 first year learners throughout the academic year. Learning was effectively assessed in each of the core competencies including communication, collaboration, teams and teamwork in healthcare, scope of practice, and one health.

Conclusions: An assessment strategy that focuses on KSA is useful in IPE curricula in order to validate that learning is occurring, and to emphasize its importance with learners. Skills and attitudes seem to be routinely measured in most IPE curricula, but knowledge is often overlooked because the IPE competencies emphasize skills and attitudes. However, knowledge is an important component that should not be overlooked.

Take-home messages: Knowledge can and should be assessed in IPE curricula in addition to skills and attitudes.

3AA/6
Developing Interprofessional Education (IPE) in Universitas Indonesia (UI): the long and winding road

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Background: Interprofessional education (IPE) is the first step to accomplish patient-centered collaborative practice. To respond to the global health challenge, in 2013, Universitas Indonesia (UI) started to incorporate IPE in its health sciences curriculum.

Summary of work: IPE in UI was developed in 2011 by five faculties of health sciences: medicine, nursing, dentistry, pharmacy, and public health. Two IPE modules are developed: IPE-1 on the second semester, IPE-2 on the seventh semester. The competency level of IPE-1 mainly focuses on knowledge (knows and knows how), while IPE-2 mainly focuses on behavior (shows how and does). Core competencies for IPE-1 are the concept of collaboration, role identification, and conflict resolution. The module's learning methods and assessments were developed in accordance with the learning objectives.

Summary of results: The first IPE-1 module was conducted from February-May 2013. Learning methods used were group dynamics, collaborative learning, case-based discussion, and plenary. Students are assessed by daily observation, group project, and self-reflection. Module is evaluated using Readiness for Interprofessional Learning (RIPLS) questionnaire (pre- and post-module). We expect an increase in RIPLS score from pre- to post-module implementation.

Conclusions: The first IPE-1 module in UI has been implemented in 2013 for students of health sciences

faculties. Results from module evaluation are used for future improvements.

Take-home messages: IPE should be developed together by all health sciences faculties to encourage the development of patient-centered collaborative practice.

3AA/7
Contextualising the world of health and health promotion for second year students: lessons from the Faculty of Health Sciences at the North-West University (Potchefstroom campus)

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Background: From 2010, a compulsory module Understanding the world of health was integrated into all curriculums across the Faculty of Health Sciences of the North-West University's Potchefstroom campus. This trans-disciplinary module is presented on second year level and includes the following study units: (1) Basic philosophy and the world view of health care professionals; (2) Defining health, disease, illness and wellness; (3) Different models and paradigms on health and illness; (4) Trans-disciplinary collaboration in health promotion; (5) Ethics in health sciences. The aim of this module is to enhance trans-disciplinary teaching, learning, research and collaboration in the Faculty of Health Sciences at the North-West University's Potchefstroom campus.

Summary of work: This module was planned, designed, implemented and evaluated/reviewed by lecturers across faculty. Associated tasks included student administration; identifying applicable study material; compiling the study guide/learning material; planning of contact sessions; e-learning support and developing applicable assessments.

Summary of results: The presentation will focus on: The rationale for such a module; The outcomes of the module; The content; Teaching methods and strategies; Assessment; Student feedback; Lessons learned.

Conclusions: In spite of a number of challenges, a compulsory trans-disciplinary module for students across the Faculty of Health Sciences offers numerous opportunities towards the development of health care professionals.

3AA/8
600 students from 6 professions learning integrated care

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Background: There is an increasing focus on the need for integrated health care. Good integrated care relies on interprofessional understanding. However, students frequently report that they have no or little interaction with students from other health professions.
Summary of work: Based on a strategic initiative from organisations involved in health care delivery, research and education in in Central Norway, educational activities where students from different professions meet was developed. The theme was "Competency in Integrated care across professional disciplines" and as a pilot it was conducted in one day.
Summary of results: A total of 600 3rd year students from medicine, nursing, social work, physiotherapy, occupational therapy and social education (welfare nursing) took part. They were divided into groups of 10 with every profession represented in each group. The main content of the day (7 hours) was group work with discussions based on a video of a patient experiencing transitions that were uncoordinated and presentations of each discipline by the students themselves. The plenaries lasted for 2.5 hours and had one lecture on integrated care, a session with question and answer and presentations by some students on what they would say to employees in the health care sector about integrated care and interprofessional collaboration. Finally, the students saw a video of the same patient as in the first video, but this time with transitions that were coordinated.
Conclusions: The students rated the day as very successful.
Take-home messages: There is a very high need for time consuming coordination in carrying out a project involving students from many different professional educations.

3AA/9
Measuring interprofessional competency of medical school students who completed multistep, structured, four-year interprofessional education program

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Background: Medical, pharmaceutical sciences and nursing departments of Chiba University started multistep, structured interprofessional education (IPE) program since 2007. This is preclinical program and composed of four steps, advanced parallel to the school year. After completing this program, students get into clinical training for 2 years. We developed Chiba Interprofessional Competency Scale (CICS-29), a new scale for measuring interprofessional competency of professionals and students in the clinical settings.
Summary of work: We used CICS-29 to measure interprofessional competency at the time of graduation both of 2011 graduates and 2012 graduates from medical school. 2011 graduate didn't have IPE program and 2012 graduates had four-year IPE program.
Summary of results: 2011 graduates had lower scores in the domains of team building and collaborative work than domains of professionalism and patient-centered care.
Conclusions: There were differences in interprofessional behaviors between medical school graduates who had an IPE program and ones who did not have one.
Take-home messages: It is difficult but important to assess the long-term effect of IPE program, especially in clinical settings.

3AA/10
Role of Nurses as Home Visit Facilitators for Medical Students, Faculty of Medicine, Prince of Songkla University, Thailand

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Background: The home visit is ideal for medical students to learn family health outside medical school. Our medical students are assigned to a home visit program in the rural area. One medical faculty facilitates eight students. Since 2008 the registered nurses have cooperated to be home visit facilitators to provide learning opportunities from experienced health personnel.
Summary of work: To describe roles and attitudes of the nurses who volunteered to be home visit facilitators for medical students. They completed a self-administered questionnaire. Data were analyzed by SPSS software.
Summary of results: All 31 female nurses responded and had average age 37.5 years. 93.5% had Bachelor Degree, 6.5% completed Masters Degree and 67.7% had more than 5 years experiences of nursing. They clearly understood the program objectives (= 4.5). They were confident to use their knowledge (= 4.5) and nursing experiences (= 4.8) when supervising the students. The students benefited from their facilitator roles (= 4.3). The orientation for facilitators was too short (= 3.6). The compensation was appropriate (= 4.4). They believed most students achieved the objectives (= 4.5) and 93.5% agreed to participate the future program.

Conclusions: The volunteer nurses were confident to supervise medical students in health related topics. They needed more orientation for facilitators' role. They felt worthy for medical students' learning and had positive attitudes towards facilitators' role. They had adequate health capability to facilitate medical students during home visit.

Take-home messages: Besides medical lecturers, nurses are the other main resources of home visit facilitators.

3AA/11
Is this still in? – needs more revision but cannot understand - YES
Medical Education - interprofessional learning in Primary Health Care

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Background: The Family Health Strategy – FHS, works in multidisciplinary teams and is based on individual attention within the family context and integral vision care. The singular and the complex needs of individuals involve a list of competencies and go beyond the barriers of knowledge and professional, featuring interprofessional work. The training of health professionals in Brazil advanced significantly with the official publication of the National Curriculum Guidelines for medical courses (DCNs, 2001), involving interprofessional training and innovative teaching methods. The present study addresses the learning process for the Medicine Course, established in 2004. Two axes guide the curriculum: 1.active learning and student-centered teaching; 2. Community-oriented Medicine.

Summary of work: Medical Education teaching is in teams composed of different professions, coordinated and integrated through interprofessional work in a cross-module course - PISCO - Integration Program in Community Health, and evaluation analysis tools are used. Methodology: 1.Correlation of skills developed interprofessionalism proposed in the Pedagogical Project, Teaching Plans of PISCO, the DCNs identify components of interprofessionalism; 2. Qualitative analysis of periodic evaluation of the educational program for students - Moodle platform; 3. Qualitative analysis of the narratives of the practices of the students.

Summary of results: We identified correlations between institutional documents of interprofessionalism and assumptions, practices developed by students with health teams and community. The most important aspects: shared planning, therapeutic decision making in teams, rotating leadership, patient care and responsibility, about the limits of another professional, collaborative actions, shared evaluation, and continuing education through the exchange of knowledge and of doing.

Conclusions: Students identify with greater emphasis on teamwork. It is necessary to construct medical professional competencies in response to real needs of the communities, especially in developing countries.
Take-home messages: Health policies involved universities with complex approaches to complex realities.

3AA/12
Interprofessional education for medical students in clinical setting: A Nurse Day

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Background: Interprofessional education (IPE) has been proposed as an important foundation in preparing junior medical students for patient care within collaborative care environments. However, mandatory IPE experiences are not always contained in basic clinical training.
Summary of work: Our training program operates on one full day for junior medical students at the teaching ward of Tzu-Chi hospital. This course focuses on patient care through medical students and senior nurses working together. One week later an online student satisfaction survey was conducted. Narrative evaluation feedback and rating scales are used to evaluate the work.
Summary of results: This program could enable students to interact with other professions, enhancing their team working skills.
Conclusions: This practice-based IPC intervention can improve medical students' thought on healthcare processes and outcomes.
Take-home messages: The limitations in terms of the sample sizes, problems with conceptualising and measuring collaboration, and heterogeneity of interventions and settings should be solved in the future.

3AA/13
Educational Practice in an Innovative Curriculum: Teaching/learning challenges from an interprofessional perspective

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Background: Given the need to train health professionals with different skills, the Federal University of São Paulo, Santos-Brazil, implemented an innovative curriculum for five undergraduate courses. The proposal included a curriculum design organized into axes and modules with an emphasis on interprofessional education (IPE), teamwork, collaborative practice.

Summary of work: This study proposed to analyze the perception regarding the adequacy of these educational practices in relation to a curriculum based on IPE. A semi-structured questionnaire was administered in the classroom to 120 students and to 25 faculty who responded to the same questionnaire by email. The questionnaire had open and closed questions about the degree of agreement regarding the implementation of the curriculum, expected competencies, educational strategies used, obstacles faced and a narrative of the last class attended or taught. Data was analyzed for simple frequency and analysis of the content.

Summary of results: The students' perceptions in the narratives showed that most of the faculty use active methodologies and problem solving. Like the students, the faculty reported the use of these methodologies to train professionals with skills in teamwork and collaborative practice. They recognize the changes in educational practice after enrolling at the University and consider themselves prepared to use active methods. The narrative of these faculty identified educational practices that are aligned with the curriculum proposals.

Conclusions: We conclude that there are examples of practices that are consistent with the integrated curriculum, making learning from an interprofessional perspective possible.

Take-home messages: The most important lesson learned was the identification of those teachers with the potential to be multipliers.

3AA/14
Interprofessional simulations at an undergraduate level

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Background: Interprofessional education (IPE) in health care education is spreading worldwide. At Uppsala University Interprofessional Simulations (IPS) has been part of the curriculum since 2011. Participants are medical and nursing students from their last semester. This study aims to collect and summarize today's knowledge of IPE in Sweden and examine the new IPS. The study is a pilot with the purpose of finding approaches and methods for future studies.

Summary of work: We used a triangulation of methods consisting of a literature study, questionnaires and one focus group interview. Part of the questionnaires consisted of the Readiness for Interprofessional Learning Scale (RIPLS).

Summary of results: We found 18 published articles concerning IPE at a undergraduate level in Sweden.

None of these concerned IPS at an undergraduate level. 24 students filled in our "Before questionnaire" and 20 filled in our "After questionnaire". Three students attended our focus group interview.

Conclusions: According to the results from both questionnaires and focus group interview IPS are appreciated by the students. The students also esteem highly on questions concerning whether they acquired any knowledge during the simulations. Our results from the RIPLS questions suggest that nursing students as well as female students in general have a more positive approach to teamwork compared to medicine and male students respectively.

Take-home messages: Many studies show that health care students appreciate IPE. The next step is to investigate the long-term effects on both attitudes and knowledge. We also suggest the use of a theoretical framework when planning future studies. One that we find suitable is The Kirkpatrick Model.

3AA/15
Q. What do medical students get up to at the weekend? A. They sign up to be part of an enhanced multi-professional weekend team on the medical wards

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Background: East Kent Hospitals University NHS Foundation Trust (EKHUFT) has been awarded pilot monies by Health Education England as part of the Better Training, Better Care Project. As part of our pilot, EKHUFT has created an enhanced multi-professional weekend team - a registrar, a senior nurse, an F1 doctor and a healthcare assistant - that works exclusively on the medical wards. We asked our medical students if they would like to experience weekend working within this team.

Summary of work: Each new cohort of medical students is given information on the pilot and is invited to become part of the 'cold' weekend team for at least one weekend. Between October 2012 and February 2013 the experiences of some of those medical students and other members of the team were captured.

Summary of results: 100% of students strongly agreed/agreed that: There were specific learning opportunities for them, they had more time to talk to seniors, they had more time to spend with patients, they were more prepared for working weekends as a

foundation doctors, all medical students should experience weekend working before becoming a doctor. Medical registrars, foundation doctors and nurses felt that the medical students were a valuable addition to the weekend team and that the experience offered useful learning opportunities to them.

Conclusions: A safe, supportive weekend environment can provide medical students with unique opportunities for learning as a valued team member.

Take-home messages: Medical students enjoy opportunities to participate in innovative projects and they will give up their own time to participate in learning activities that they feel are of real benefit.

3AA/16

Effectiveness of early-stage Interprofessional Education (IPE) for university students' thorough practical training

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Hitoshi Sohma (Sapporo Medical University, Center for Medical Education, Sapporo, Japan)

Background: The purpose of this study is to evaluate the effectiveness of Interprofessional Education that is implemented soon after students enter university. Sapporo Medical University, located in Hokkaido region of northern Japan, has four departments: Medicine, Nursing, Physical Therapy, and Occupational Therapy. The program for the first year students was updated in 2012, with the aim of improving students' communication skills and providing them with the knowledge and attitudes they will need for collaborative practice. In the first semester (March to July), lectures are held once a week. In August, a three- to four-day long practical training session is held at rural hospitals and long term care facilities. In the second semester (October to January), lectures and exercises are held once a week.

Summary of work: We examined changes in social skills (Kikuchi's Scale of Social Skills (KiSS-18)) and Readiness for Interprofessional Learning Scale (RIPLS) scores before and after practical training. Changes before and after practical training (main effect), gender (main effect), and gender-based differences in changes before and after practical training (interaction effect) were examined using a repeated measures analysis of variance. 39 students completed both surveys.

Summary of results: Scores on KiSS-18 and two RIPLS subscales (Teamwork and Collaboration, IPE Opportunities) improved significantly for male students, whereas scores on the third RIPLS subscale (Uniqueness of Profession) increased significantly for female students.

Conclusions: This study found that: (1) practical training in IPE implemented early on has a short-term effect, and (2) effects vary depending on gender.

3BB Posters: Simulation
Location: South Hall, PCC

3BB/1
Enhancing self-confidence by the emergency ultrasound simulation training for medical trainees

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Background: Ultrasound examination (UE) is widely used for emergency patients. Focused cardiac UE is useful for unstable emergency patients. However, medical students and junior residents are not familiar with the procedures of UE. We provide a simulation course for medical trainees by using virtual reality simulator to improve the knowledge and basic skills of emergency focused cardiac UE.
Summary of work: The simulation was conducted by 24 medical trainees at Far Eastern Memorial Hospital in Taiwan and was done structurally by giving a 40 minutes lecture, and using the ultrasound simulator for practices in an emergency setting. Each trainees was received a post-test by having structured simulation exam and filled in a questionnaire regarding self-confidence in analyzing long and short axis, cardiac wall motion, pericardial effusion and the meaning of RV, LV and IVC size before and after simulation training.
Summary of results: Trainees indicated that the capability of image reading and familiarity of ultrasound equipment are the most barriers of learning UE. All trainees agreed that simulation training could enhance their self-confidence. 86.4% trainees answered Hypovolemic shock correctly and 87.5% performed correctly in 4 chamber view in the post-test. Moreover, 41% trainees are agreed that this course could improve their knowledge of cardiac UE in dealing with emergency condition timely and all trainees are recommended this course.
Conclusions: Focus cardiac UE simulation training can enhance their capability in performing ultrasound and interpretations. Trainees can construct their self-confidence and improve their skills through simulation training and thus can manage emergency patients timely and correctly.
Take-home messages: Simulation UE training is useful and important in treating emergency patients.

3BB/2
Maternity: The role of human factors and simulation in the training and assessment of the current and future workforce

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Colleen Wedderburn Tate (University College London Hospitals, Maternity, London, United Kingdom)
Deirdre Nagle (University College London Hospitals, Maternity, London, United Kingdom)
Melissa Whitten (University College London Hospitals, Maternity, London, United Kingdom)
Sasha Wilson (University College London Hospitals, Haematology & Transfusion, London, United Kingdom)
Amanda Green (Cognisco, London, United Kingdom)

Background: Analysis of serious incidents within obstetrics highlighted the need for staff to be skilled in prompt recognition and management of patients at risk of rapid clinical deterioration. Key national publications also highlighted human factors and non-technical skills as areas of focus for the improvement of maternity services. The revision of mandatory training within our healthcare organisation was a strategic starting point.
Summary of work: The shift from mere attendance to competency based assessment was the first step toward the 'proactive update' for clinicians to promote safe care. The vehicle of choice was simulation training. Simulation provides the opportunity to train in a safe environment yet still elicits real time responses as an aid to learning. An online assessment tool was developed to assess key knowledge goals relating to recognition and management of the patient at risk of deterioration. Multidisciplinary faculty and participant evaluation of scenarios enabled input into service development within the clinical workplace and the recruitment of staff.
Summary of results: The simulation training programme has been undertaken by all staff and trainees. Online assessment has demonstrated measurable improvements in understanding and confidence in addition to an improvement in clinical outcomes.
Conclusions: Implementation of high-fidelity simulation training is achievable with a committed training faculty and senior divisional support. Online assessment enables effective training needs analysis for individuals and groups regarding clinical management and human factors awareness. This also supports the patient safety focus for both training programme development, service development in the clinical environment and recruitment.
Take-home messages: Teams that work together should train together.

3BB/3
Simulation technology applied to the pathophysiology courses

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Ferdinand Varga (Jessenius Faculty of Medicine, Simulation Center, Martin, Slovakia)

Background: Pathophysiology is the key course in undergraduate medical education. Understanding of the mechanisms of diseases is the underlying condition for

students to learn further, how to recognize signs and symptoms of diseases and to support their „clinical thinking". Position of pathophysiology in the curriculum is on the border between theoretical and clinical disciplines, and we would rather want it to be a link between these two.

Summary of work: To support understanding of pathological processes and to demonstrate clinical application of obtained knowledge, we decided to apply simulation technology to the pathophysiology courses. Seminars (acid base disorders, shock, heart and respiratory failure) had been selected as optimal to utilize Meti MUSE software and Meti Man Prehospital full body manikin to demonstrate onset, progression and consequences of pathological processes. Employment of patient simulator for this purpose is quite "unusual", as it serves for demonstration rather than for intervention/medication purposes or skills training. Physiological functions and vital signs are modified to show progression of chosen process. Students observe "fast-forwarded" deterioration or improvement of patient status, they can intervene with "what if..." suggestions, switch between pre-programmed scenarios, discuss and compare symptoms and their causation.

Summary of results: Feedback performed at the end of the semester revealed positive outcomes from the students' side. They were able to see directly clinical application of presented pathological processes with better retention of the knowledge. When asked for overall impression from the course, 100% of responding students agreed on the fact that "use of simulation technologies has significant contribution to the quality of the course".

3BB/4
Can we use simulation training to ensure minimum competency of medical students in performing a Pap smear in patients?

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Background: A patient simulator, manikin, was commonly used in training medical students to perform cervical cancer screening, Pap smear, to maximize both students' clinical skill and patients' safety. However, the level of practicing skills required to achieve minimum competency in real patients is unknown. This study aims to explore the level of students' skills required during Pap smear training to ensure their minimum competency in real patients.

Summary of work: A longitudinal study was conducted in 29 sixth-year medical students who undertook the 8-week OB-GYN module at Suratthani hospital. A 30-minute training session, including lecture and procedural demonstration, was initiated on the first day of the module before letting students practice a Pap smear with a manikin. Students' skill in a manikin was

rated by a gynecologist, from 0(worst)-100(best). Afterward, students were allowed to do a Pap smear in real patients, with their performance being re-evaluated by the same staff. A simple linear regression analysis was applied to explore the relationship between manikin and patient scores.

Summary of results: Means of students' manikin and patient scores were 85.62(SD=10.02) and 80.79(SD=7.34), respectively. Statistical results reveal the manikin scores as a significant predictor of the patient scores (p-value<0.0005); the model to demonstrate the relationship is as follows: patient score = (manikin score x 0.649) + 25.13 (adjusted R-square=0.772). A manikin score of 85 is expected to achieve a minimal competency score of 80 in real patients.

Conclusions: A positive causal relationship between a Pap smear skill in simulation training and in real patients is indicated.

Take-home messages: Improving students' performance during simulation training could ensure their competency in real patients.

3BB/5
Application of in-situ high-fidelity simulation for "A-C-L-S (Airway-Circulation-Leadership-Support)" teamwork model training for healthcare providers during simulated cardiac arrests

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Background: A model for resuscitation teamwork training called Airway-Circulation-Leadership-Support (A-C-L-S), comprising 4 domains: Airway (A), Circulation (C), Leadership (L), and Support (S), was developed and implemented. This study is to demonstrate the effectiveness of in-situ high-fidelity simulation (HFS) for A-C-L-S teamwork model training during simulated cardiac arrests.

Summary of work: Nursing staff in 6 general wards of National Taiwan University Hospital were all invited to attend the training courses. Trainees were randomly grouped into 4-5 persons for each HFS session (simulated cardiac arrest in a general ward). Each session lasted 10 minutes, followed by video-assisted debriefing. One month later, a second HFS session was arranged for each group. Assessments for each trainee, including 10-point-scale self-efficacy questionnaires

(Score S) and 10-point-scale teamwork global self-ratings (Score T), were used in both HFS sessions. Checklists of simulated performance (Score C) using 10-point scale were used to evaluate group performance during simulation sessions.

Summary of results: During May to July 2013, sixty nursing staff (total 14 groups) were included for training courses and assessments. Assessments for each trainee improved significantly after in-situ HFS training for A-C-L-S teamwork model (Score S 4.6 to 7.5 (p <0.001), and Score T 5.3 to 7.1 (p <0.001)). Resuscitation performance for each group during simulation also improved significantly (Score C 5.3 to 8.6 (p <0.001)).

Conclusions: Application of in-situ HFS for A-C-L-S teamwork model training is an effective modality for resuscitation training in improving not only self-efficacy and teamwork self-ratings, but also group resuscitation performance.

Take-home messages: In-situ HFS is an effective training tool for resuscitation teamwork training.

3BB/6
Are biological simulators useful for competencies acquisition related to invasive procedures during undergraduate studies?

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Nicolas Locatelli (Maimonides University, Medical School, Buenos Aires, Argentina)

Background: The use of simulation at any educational field improves the learning perspectives for both teachers and students, and allows the development of objective and critical awareness.

Summary of work: Primary objective: to carry out a comparison between two groups, with regard to the acquisition of skills and knowledge gained by medical students. The first group performed the practical training with biological simulators, while the second did not use a simulator. Secondary objective: to check if the senior medical students (5th year) obtain more benefit - due to the fact that they possess more medical knowledge - than the 4th year undergraduate medical students. Thirty-six students enrolled in fourth and fifth years of the medical career, Maimonides University (Universidad Maimónides, Buenos Aires, Argentina) were divided randomly in two groups to learn medical invasive procedures. They received theoretical and practical training in diagnostic peritoneal lavage, placing of tubes for pleural drainage, cricothyroid puncture and surgical cricotomy. One of the groups was trained with biological simulators. The theoretical and practical

learning was assessed by means of a written multiple choice examination, the practical assessment was made using a verification form OSCE (Objective Structured Clinical Examination).

Summary of results: The results show that the students in the group with procedural training using biological simulators attained better scores (statistically significant) than their counterparts without such training. These attributes of simulation-based education are consistent with models of effective educational interventions.

Conclusions: The virtual environment allows a learning that is difficult to achieve under normal circumstances; this is so because the trainees can work in a realistic and critical environment where they can develop skills in an instance very demanding from the cognitive perspective, and also emotionally compelling.

3BB/7
Do simulated performances correlate to subsequent clinical performances?

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Background: Preterm birth is one of the major causes of neonatal morbidity and mortality in infants. Transvaginal ultrasound measurement of the cervix-length has become a key to determine the risk of preterm birth. The examination is considered safe but also difficult to learn for novices due to the challenging interpretation of ultrasound scans and equipment handling. The quality of ultrasound examination is highly operator dependent and adequate training is necessary before clinical practice. The aim of this study was to explore the correlation between performances on a Virtual Reality ultrasound simulator and subsequent clinical performances. The research questions were: In a group of midwives training on Virtual Reality ultrasound simulators, I) How does simulator performance-scores correlate to subsequent ultrasound performance in a clinical setting? And II) How many repetitions are needed on the simulator to achieve proficiency and how does it correlate to the number of repetitions needed for clinical proficiency?

Summary of work: In a prospective correlation study the relationship between transvaginal ultrasound performances on a Virtual Reality simulator and ultrasound performances in vivo on gynecological patients is examined. Simulator metrics are used to evaluate numbers of repetitions needed for proficiency,

which is correlated to subsequent number of clinical scans needed for proficiency.

Summary of results: Data collection is in progress and final results will be presented at the AMEE conference.

Conclusions: We also hypothesize that midwives who use few attempt to reach proficiency in simulated setting also need fewer repetitions in the clinic before proficiency. However, the opposite situation may also be observed as time spent on a simulator may translate to better clinical performance due to automaticity rather than proficiency.

3BB/8
Arthrocentesis workshop with synthetic knee model improves students' performance for knee arthrocentesis in the 6th year medical students

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Background: Knee arthritis is a common clinical problem for which knee arthrocentesis (KA) is essential in the differential diagnosis. The Thai Medical Council has rated KA as a requirement procedure for training medical doctors. However, up until now, medical students (MS) in Thailand only perform the procedure by chance. Workshops were therefore arranged for all sixth-year medical students using synthetic knee model to ensure equity in receiving training.

Summary of work: The workshop was divided in 2 parts, first, providing general knowledge in arthrocentesis, and then practicing the procedure under supervision. This is a report of pre-and post-workshop self-evaluation about the confidence in performing KA and benefit (0-10 scales) from attending workshop.

Summary of results: There were 170 and 158 MS who attended and evaluated the workshops, respectively. Seventy-nine (50%) MS had experience in KA prior to this workshop. The mean (SD) level of the procedural confidence before and after the workshop were 4.3 (2.4) and 7.5 (1.4), respectively. The mean score of post workshop was more than at least 50% of mean pre-workshop score, significance $p < 0.0001$. The experienced MS were 30% more confident for KA than pre-workshop, significantly. They rated the mean benefit of this workshop as 9.0 (1.2).

Conclusions: A hands-on structured-workshop using synthetic knee model for knee arthrocentesis improved medical students' confidence in performing the procedure even in students who were exposed to KA prior to the workshop.

Take-home messages: Hands-on workshop on synthetic model could improve medical students' confidence and should be arranged for the many essential skillful procedures for medical trainees.

3BB/9
Do undergraduates find high fidelity simulation as useful as postgraduate medical trainees?

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Background: High-fidelity simulation is regarded as a highly effective tool in postgraduate medical education (Temple 2010, Cook 2011, Issenberg 2005), however its role in undergraduate training is undefined.

Summary of work: Undergraduate (UGT) and postgraduate (PGT) trainees received simulation sessions on appropriate clinical scenarios. All trainees completed Likert based questionnaires (1-5, low to high), before and after sessions. Questions covered clinical skills confidence and simulation as a teaching method. Focus groups were conducted, evaluating themes including the effectiveness of simulation and simulation for UGT. Data analysis included the Wilcoxon signed rank test for the questionnaires and coded analysis for the focus groups.

Summary of results: 68 UGTs and 56 PGTs completed simulation training. Both groups rated simulation as educationally valuable, with no statistical difference between group scores (UGT mean 4.76, PGT mean 4.73, p value 0.76) and rated feedback they received as highly valuable (cumulative mean score of 4.54). All trainees rated simulation as a more valuable method of training than others (eg lectures, workplace based assessments) and subjectively useful for improving their clinical skills. Common themes from both groups highlighted simulation training for non-clinical skills eg. interpersonal skills and crisis resource management.

Conclusions: Minimal differences exist between UGTs and PGTs evaluation of simulation. Both groups reported it as educationally valuable, feedback was highly rated during the sessions and simulation was the most useful method of teaching. Both groups subjectively reported it addressing clinical and non-clinical skills.

Take-home messages: High fidelity simulation can be used for clinical and non-clinical training in all stages of medical training.

3BB/10
Redefining the stethoscope of the future: Utilizing simulation technology to teach ultrasound guided physical examination of the abdominal aorta and kidneys to internal medicine residents

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Background: Using point-of-care ultrasound to enhance physical examination may improve patient safety. Lack of formal training in point-of-care ultrasound has been identified as a primary barrier to widespread adoption.
Summary of work: A workshop was created to instruct PGY-2 and PGY-3 internal medicine residents in point-of-care ultrasound imaging of the abdominal aorta and kidneys. The workshop included didactic instruction and hands-on ultrasound practice with standardized patients. The objectives of the workshop were to review ultrasound operation ("knobology") and teach residents to independently obtain ultrasound images of the abdominal aorta and kidneys. Each resident's ability to independently obtain ultrasound images was assessed using a skills exam with a standardized patient. Resident knowledge and attitudes towards point-of-care ultrasound were assessed using a pre and post-test.
Summary of results: Most (34 of 40) residents were able to independently obtain high-quality images of both the abdominal aorta and kidneys on standardized patients after workshop completion. Residents demonstrated a statistically significant increase in their self-reported confidence with ultrasound operation and also indicated that they were more likely to use point-of-care ultrasound in their clinical encounters in the post-test compared to the pre-test.
Conclusions: Focused workshop training can prepare residents to independently obtain point-of-care ultrasound images of the aorta and kidneys. The workshop resulted in increased resident confidence with point-of-care ultrasound and self-reported likelihood of future clinical use.
Take-home messages: A hands-on ultrasound workshop can teach internal medicine residents to perform point-of-care ultrasound while also increasing self-reported likelihood that residents will use ultrasound in their clinical practice.

3BB/11
Exploring the effects of practice scheduling on bronchoscopy skills learning

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Background: Prior research on practice scheduling within medical simulation training has shown distributed practice beneficial for learning procedural skills.

However, principles derived from the study of simple skills may not necessarily generalize to more complex skills learning, and more work is needed to explore the impact of practice scheduling on combined complex cognitive and motor skills learning, like bronchoscopy skills learning. This study examines the most effective schedule for acquiring bronchoscopy skills through simulation training; massed practice (three practice sessions distributed within one day) or distributed practice (one practice session a week for three weeks).
Summary of work: Twenty residents from a department of chest diseases were randomly assigned to massed practice or distributed practice. Each training session consisted of an instruction video followed by unsupervised training on three simulator cases. Performance was assessed with pre-test, post-test, and four-week retention test with previously validated simulator metrics.
Summary of results: A significant main effect of test was found for all measures, except for the number of wall collisions, indicating improvement in performance from pre-test to post- and retention test. No interaction was found between test and group, and no main effect of group was found for any of the measures, indicating equal learning curves.
Conclusions: We found massed practice and distributed practice equally effective for learning a combined complex cognitive and motor skill - bronchoscopy skills learning - through simulation training. Principles applying to simple and complex skills training may differ.
Take-home messages: Massed practice and distributed practice were equally effective for learning a combined complex cognitive and motor skill.

3BB/12
Evaluation of the implementation of simulation practice into a postgraduate year-1 residency emergency medicine training curriculum

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Background: Many junior trainees feel that they are inadequately trained in managing rarely-seen but critical cases in the ED. Medical simulation has been proposed as a technique to bridge the educational gap.

Summary of work: Postgraduate year-1 (PGY1) emergency medicine (EM) training was implemented in Chang Gung Memorial Hospital in August 2009. The curricula and outcomes are well-received, based on feedback from around 110 - 130 trainees annually. The one-month EM training program is reviewed periodically to ensure that it is effective. However, many PGY1 trainees still do not feel competent and confident in managing rarely-seen critical cases at the end of EM training. In December 2012, a short course in a simulation workshop, based on team dynamics, procedure skill training and video-based structured feedback and debriefing, was trialled. PGY1 residents reported their confidence and competence before and after the simulation series and made comments on their perception of the experience.

Summary of results: Thirty-five PGY1 residents responded to the survey (97.2% response rate). The perceived effectiveness of simulation training from trainees was identified from the comparison between pre-course and post-course Likert scale (1 to 5) in knowledge (2.5±0.9 vs. 3.9±0.7, p<0.001), procedure skills (2.7±1.0 vs. 3.9±0.7, p<0.001), and confidence (2.4±1.0 vs. 3.9±0.8, p<0.001) in managing simulated critical cases. PGY1 residents feel the lack of knowledge and confidence to manage the simulated poisoning cases as compare to manage others.

Conclusions: PGY1 residents need an opportunity to engage in treating rarely-seen but critical cases in EM training. Simulation practice assists them to be more competent and confident.

Take-home messages: Simulation practice assists PGY1 residents to be more competent and confident in EM training.

3BB/13
Creation of an Ongoing Quality Improvement and Needs Assessment Process for a Clinical Simulation Center

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Background: Although medical institutions employ simulation-based education (SBE) worldwide, no formal evaluation has been performed to identify optimal resources and services needed by SBE programs. Having an accurate estimate of resources and services used, and a clear understanding of user challenges, allows institutions' administrators to address gaps and continually improve the scope and scale of services provided.

Summary of work: After IRB exemption, we disseminated a 20-item, web-based survey to program directors, undergraduate and graduate faculty, and nursing educators at our institution. The three-part survey consisted of a) resources, b) services, and c)

challenges. Measures were captured via 3-point rating scales ranging from 1 (I would not use this resource) to 3 (I currently use this resource). We summarized frequencies and ranked challenges.

Summary of results: Twenty respondents indicated their preference for smaller (M = 2.28, SD = .57) over larger (M = 1.47, SD = .62) spaces. Participants preferred procedural (M = 2.06, SD = .73) over task trainers (M = 1.82, SD = .73) and computer-based simulators (M = 1.67, SD = .77). Respondents use support for developing clinical scenarios (M = 2.12, SD = .33) over maintenance of certification programs (M = 1.81, SD = .54). Top challenges were "I don't know what simulators/equipment are available to me" (53%), and "I don't have time to develop new curricula" (35%).

Conclusions: Using a standardized survey during quality improvement helps administrators adapt their centers to meet educational needs, engage new learners, and demonstrate continued relevance to institutions.

3BB/14
Stepping-stones at the interface between the medical school curriculum and the interdisciplinary simulation center

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Background: Experiential learning in general and medical simulation in particular have the potential to augment the instructional process and are effective tools for interprofessional training, evaluation of skills, knowledge and attitudes, reflective practice, and research.

Summary of work: This presentation is based on the author's role as interface between the College of Medicine and the Interdisciplinary Simulation Center for the last two years in implementing or expanding medical simulation activities across the curriculum and promoting interprofessional education. This activity included exploring the clerkship directors' views, assumptions and particular needs, assessing resources, and collaborating in planning and conducting simulation sessions.

Summary of results: The positive results of the collaborative efforts with the Internal Medicine Clerkship, the Pre-matriculation Program and the Department of Family Medicine represent stepping-stones and potential models for developing further activities and programs. The strategies included providing an adequate level of consistency among activities and gradually diversifying the case scenarios to respond to the increasing focus on interprofessional educational activities in a coordinated manner that contributes to a meaningful continuity of learning experiences.

Conclusions: In parallel with addressing specific needs of the learners at a given time and complementing other instructional modalities that are already in use, our goal has been to build a scaffolding continuity among the

simulation activities organized in various phases of the curriculum at departmental and institutional level.
Take-home messages: Emphasis has been placed on combining the value of hands-on experience in a safe environment with the opportunity to review and consolidate key basic and clinical science concepts through clinical reasoning and reinforcing the relation between pathophysiology and clinical skills.

3BB/15
Training nursing care for children with type 1 diabetes using simulation integrated with problem based learning

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Background: Although type 1 diabetes is a rare disease in Asian children, nursing students should be trained considering its devastating complications.
Summary of work: A two-group nonequivalent quasi-experimental study was taken to evaluate the effectiveness of a simulation integrated with problem based learning (SIM-PBL) module of children with diabetes on self-efficacy (SE), knowledge and clinical performance of undergraduate nursing students. Eight students of the intervention group received a 3-hour SIM-PBL training and seven students in the control group received regular clinical practicum of children's health nursing.
Summary of results: After the SIM-PBL and the regular practicum, the improvements of the intervention group were higher in SE (30.75 ±32.226 vs 1.00±15.695; t=2.216, p=.045), but lower in knowledge (.00±0.756 vs 1.43±3.101; t=-1.267, p=.227) than the control group. Objective structured clinical examination (OSCE) was also applied to evaluate clinical performance for both groups and the mean scores of OSCE were higher in the intervention group (23.75±2.866 vs 20.29±2.289; t=2.559, p=.024).
Conclusions: The SIM-PBL module of type 1 diabetes improved clinical performance, SE and knowledge of undergraduate nursing students.
Take-home messages: The SIM-PBL modules could be used in particularly for clinical conditions students are rarely exposed.
This study was supported by Basic Science Research Program of the National Research Foundation of Korea (2011-0009627)

3BB/16
Implementation of simulation test to evaluate core competencies for ED residents

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Background: Simulation is a useful tool for residents training. It is appropriate for performance assessment but there is little evidence that supports simulation in the use for summative evaluation. Therefore, we introduce simulation test to evaluate the performance of ED residents in core competencies.
Summary of work: The Emergency Department of Chang Gung Memorial Hospital employs medical simulation to accurately judge ED residents by using "patient scenarios" during oral board exams. 34 ED residents participated in the exams at December 15, 2011 and August 9, 2012. Each exam contains 6 stations, including patient care, medical knowledge, clinical-oriented self-learning and sophisticated, interpersonal communication skills, professionalism, and system based practice. Written test was also taken at the same time. 30 attending emergency physicians join the questionnaire surveys about ED resident competency, which was completed in February 2013.
Summary of results: There is a close relationship between the questionnaire survey and the simulation test. Residents with good results from questionnaire usually have excellent performance in simulation test. However, written test could not show any relationship. Among the Questionnaire surveys, 3 persons are seemed to have poor performance during the past year. Their simulation results show poor performance of core competencies in patient care, interpersonal communication skills, and system based practice.
Conclusions: Application simulation tests offer a better method to evaluate the performance of ED residents. It may help the medical providers to reinforce the simulation-based resident education and training.
Take-home messages: Simulation is a useful tool for training residents and in ascertaining competency. The core competencies most conducive to simulation-based training are patient care, interpersonal skills, and systems based practice. It is appropriate for performance assessment of core competencies in ED residents.

3CC Posters: Empathy and Attitudes
Location: South Hall, PCC

3CC/1
Evaluation and Improvement of a Medical Ethics Program in a PBL curriculum: two-year results

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Background: Medical ethics education has universally become an integral part of undergraduate curricula. For the evaluation of a medical ethics program's effectiveness, which was revised during an outcome-based curriculum development, a study was conducted, starting from the first-year.
Summary of work: Kirkpatrick's model at level 1 and 2 was used for the evaluation of the program's effectiveness: students' satisfaction and opinions regarding each educational activity per module (feedback forms); students' opinions of the effectiveness of the overall medical ethics program (questionnaire) at the end of first and second year and; assessment of students' knowledge levels evaluated by a special pre- and post-test using MCQs in first year.
Summary of results: The overall satisfaction level on educational activities was high in both years. Students' opinions on the program's effectiveness was perceived as most effective for the 'acquisition of the skill to discuss ethical problems' in first-year and for 'identifying and describing ethical issues' in second-year. The comparison of pre and post-test results in the first-year showed the highest increase in 'being knowledgeable about appropriate approaches to ethical issues in patient-physician relationships' and 'ethical principles in physician-media interactions'. Individual novel reading assignments were found less effective in teaching/learning ethical issues.
Conclusions: Students' opinions were elaborated and used for further improvements. One of the changes was to organize small group discussions, facilitated by faculties, on ethical issues identified during students' individual novel reading assignments.
Take-home messages: Effective implementation of a new curriculum requires continuous evaluation to identify issues for adjustments and improvement.

3CC/2
Medical students´ perceptions on the promotion of values and attitudes within a competence-based educational model

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Raquel Garza-Guajardo (Facultad de Medicina, UANL, Surgical Pathology Department, Monterrey, Mexico)
Gerardo Enrique Munoz-Maldonado (Facultad de Medicina, UANL, General Surgery Department, Monterrey, Mexico)

Background: The need for competent medical professionals nowadays implies not only the development of clinical knowledge and skills but also the consolidation of values and attitudes required in an international social context characterized by rapid changes and complexity. Having a university academic program that explicitly calls for the emphasis on and the assessment of socio-affective skills, leads to a reflection on substantial teaching methodological considerations as well as on the student´s commitment to contribute to his own professional growth.
Summary of work: The study was conducted with 680 students in the fourth year of their medical studies, mean age of 20.5 years. A 42-item survey was designed to assess attitudes and values contained in the formal university medical curricula in terms of their impact on students´ views about the implementation of this competence-based model.
Summary of results: The results highlight the importance of attitudes such as respect for others, commitment to carry out academic work effectively and being helpful when required, showing 75.7% of students´ preference. There was a low perception regarding the engagement in activities related to the improvement of natural resources and the involvement in class discussions as only 35.4% of the participants chose these options.
Conclusions: The findings from this study reflect the emphasis given to the attitudinal component of competences in medical curricula. Students recognize a need for contributing in the preservation of nature more actively and becoming involved in class discussions.
Take-home messages: Monitoring the effect of diverse teaching methodologies on the development of students' attitudes during medical school guide to curriculum innovations.

3CC/3
The empathy of medical students does not decline everywhere: cross-sectional and longitudinal evidence from the University of Minho

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Background: Declines in empathy throughout medical education have been reported internationally, particularly in the transition to clinical training. The undergraduate medical curriculum in the School of Health Sciences of the University of Minho emphasizes empathy in several moments and learning contexts.
Summary of work: A cross-sectional and longitudinal analysis on the empathy of medical students in Minho. Empathy was assessed using the Portuguese adaptation of the Jefferson Scale of Physician Empathy-students version (JSPE-spv) validated by our research group.
Summary of results: Cross-sectional study: For 3 cohorts of undergraduate medical students in the first (n = 356) and last (n = 120) year, global JSPE-spv score differences were examined by year of medical school, gender and specialty preferences. Scores of students in the final year were higher as compared to first year students. Longitudinal study: Global JSPE-spv scores in 3 time points were analyzed with latent growth modeling, conditioned by gender and personality traits. Empathy scores at all times were higher for females than for males, but only significantly different at the end of the preclinical phase. The model showed a satisfactory fit level and undergraduate medical student's empathy did not decline over time. Empathy scores were significantly and positively related with Openness to Experience and Agreeableness at admission, but the rate of change across time was not significant.
Conclusions: The cross-sectional and longitudinal results reveal a stability of empathy between the different time points.
Take-home messages: Our results suggest that the empathy of medical students does not deteriorate in every medical school.

3CC/4
Determination Of Medical Empathy In Pre-Graduate Students From Medicine School At National Autonomous University Of Mexico (UNAM) With Jefferson's Modified Scale

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Background: Empathy is a fundamental component in the physician-patient relationship, difficult to measure because it is a broad concept that includes various aspects, such as cognition, emotion and affection. Its concept refers to understanding experiences and feelings of others and their assessment has been made through different instruments. The Jefferson Scale has been used for medical education in undergraduate students.
Summary of work: Objective: To apply the modified Jefferson Scale to determine its reliability and to recognize the empathy elements in pre-graduate students from Medicine School at UNAM. This is a descriptive, transversal, survey kind study that includes reliability and validity tests, applied to 1213 students.
Summary of results: Cronbach's alpha was 0.80 which means an adequate reliability. The exploratory analysis of factors reported 3 different ones which explains 41.68% of variance: perspective taking, caring with compassion and taking someone else´s place. The validity exceeded the minimum criteria for considering the model as good (KMO test, Bartlett´s sphericity, explained variance and three latent factors). Our results do not differ from those of Alcorta-Garza.
Conclusions: Modified Jefferson Scale in Mexican pre-graduate Medicine students is reliable. The instrument provides a range of broad application possibilities to approach the study of physician-patient relationship that is currently very important.
Take-home messages: Empathy is an important attribute to evaluate in medical students because of its relevance in clinical practice. The Jefferson modified scale can be used in developing countries and in Spanish-speaking countries.

3CC/5
How to teach medical ethics for better and happier doctors

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Background: The rapid improvement of medical technology changes the perception of patients including expectations of the doctor's responsibility and accountability. Some physicians tend to focus on technological aspects of treatment with lagging awareness of patient outcomes and values.
Summary of work: The objective of this project is to improve medical ethics teaching and motivate an awareness of action as role-model medical instructors. This is a qualitative research about how to teach medical ethics, by a focus group study.

Summary of results: After searching the literature and asking the opinion of senior consultants who have long experiences and a well-known person about humanized medicine in Thailand, we conducted a meeting of our institute instructors on the topic of how to make better and happier doctors. 35 medical teachers participated in this meeting. During that meeting, we discussed about humanized medicine and how to teach medical ethics. The participants' medical teacher suggested 3-steps: teach medical students to know good practice, show them good practice, and let them practice humanized medicine.

Conclusions: To improve doctor-patient relationship and motivate an awareness of taking care of patients in a holistic way is important. Better doctors need good instructors to not only teach them, but also show them and let them practice the right thing to the patients as a human being.

Take-home messages: Teaching medical doctors in a rapid pace of technological change should not focus on technological aspects of treatment, but should also be aware of patient outcomes and values.

3CC/6
Developing and validating a questionnaire to assess spirituality in the clinical practice of Brazilian physicians

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Background: 90% of US and 59% of UK medical schools offer some course about spirituality. Few Brazilian medical schools have courses in this area. We developed and validated an instrument to assess how physicians deal with spirituality. No other study was conducted in Brazil with this intention.

Summary of work: The instrument was developed based in a literature review. Validation process consisted in statistical tests to analyze the validity (content validity, face validity and construct validity) and reliability (test-retest reliability and internal consistency) of the questionnaire.

Summary of results: 184 physicians of various specialties filled out the Physicians Spirituality Questionnaire (PSQ) during the validation process. PSQ demonstrated to have appropriate questions and good comprehensibility, stability and internal consistency. Factor analysis revealed 4 domains. Final version consisted of 34 questions divided in the domains: Behavior, Beliefs, Religious/Spiritual Identification and Difficulties. PSQ covers many aspects of spirituality in physicians' professional and personal lives. "Behavior" domain analyzes physicians' practices concerning spirituality; "Beliefs" assesses physicians' knowledge

about spirituality; "Religious/Spiritual Identification" inquires beliefs and the importance of religion in physicians' lives. "Difficulties" assess why physicians would not address patients' spirituality.

Conclusions: PSQ demonstrated good validity and reliability. Validating PSQ enhanced its quality and allowed its use along the time to detect changes in the behavior, beliefs and difficulties considering the insertion of spirituality in the clinical practice.

Take-home messages: Once the teaching of spirituality in increasing among medical schools, new instruments need to be developed to assess the impact of this knowledge in the medical practice, particularly in Brazil.

3CC/7
Medical student attitudes towards spirituality

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Background: Medical training recognises that people are not just biological systems but complex individuals with physical, emotional and spiritual needs.
Only a few UK medical schools provide teaching on spirituality. This varies in content and delivery and there is a lack of data regarding student attitudes towards spirituality. Aberdeen introduced a Personal and Professional Development (PPD) strand in its new MBChB curriculum which incorporates spirituality teaching. This project reports the evaluation of this teaching in terms of student attitudes towards spirituality and spirituality teaching.

Summary of work: This was a cross-sectional questionnaire survey, comparing Year 1 MBChB students who had not received teaching on spirituality with Year 3 students who had. Questions developed in reference to the literature. Demographic data was collected from participants. Students were emailed in advance of data collection with an explanation of the study and its voluntary nature. Paper questionnaires were distributed following a Year group lecture. Ethical approval was granted for the study. Data was entered into SPSS for analysis. Descriptive analysis and non-parametric tests were carried out.

Summary of results: Questionnaires returned by 168 Y1 students and 119 Y3 students. More students in Y3 agreed that spiritual care is important to patients. However, more students in Y3 reported feeling unequipped to discuss spiritual issues if this was desired by a patient. Furthermore, 74% of Y3 students were unaware of NHS Scotland spiritual care guidelines (98% unaware in Year 1).

Conclusions: The results show a mixed impact of spirituality teaching in our curriculum. Students understand that spiritual care is important to patients but not how it fits into holistic and practical delivery of a patient's health care. Further work is required to explore

students' ideas on how spiritual care teaching can be delivered.

3CC/8
A study about the inclusion of Sociology and Anthropology subjects in undergraduate Health Sciences courses at a Brazilian university

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Background: In Brazil, it has been noticed, for the past years, the implementation of innovative pedagogical proposals for the undergraduate Health Sciences courses. Social Science offers a significant contribution to the epistemological debate - by opposing life sciences to social studies lore, and by including related themes to the health studies field.
Summary of work: This study analyses the inclusion of Health Sociology and Anthropology subjects in Medical, Biomedical, Pharmacy and Physiotherapy Schools, in the context of recent attempts to regain a wider interaction among these dissimilar fields, in order to size the historicity and multidimensionality of the phenomena of health, illness, suffering, life and death. It follows the impact of the introduction of social sciences subjects in an environment of approximately 640 students of four different courses at UFCSPA University – Brazil, since 2008, encompassing proactive methodologies which favors the student as the center of the education process and delineates education in a problem-raising perspective.
Summary of results: A reorientation of pedagogical projects approaches social to health sciences, providing an important transdisciplinarity between fields of knowledge, emphasizing the 'humanization' of academic training of future professionals, so that demands deriving from Public Health System may be met.
Conclusions: The proposed formation will result in professionals better prepared to face fundamental issues concerning healthcare at community level, capacitating these individuals to promote necessary changes in Brazilian society.
Take-home messages: The reciprocity among fields of knowledge are deepened, henceforth, pedagogical contents are able to cope with new themes arising from contemporary healthcare issues.

3CC/9
Teaching medical genetics and physician-patient relationship using medical humanities

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Background: Opportunities for using the arts and humanities in medical education have increased. Medical schools are integrating humanities into their basic curriculum. We report our experience in using literature for teaching medical genetics and reflecting on the physician-patient relationship.
Summary of work: The Pulitzer price novel, "Middlesex" by Jeffrey Eugenides was used for teaching sexual differentiation disorders and to reflect on the relationship of the patient and family with the physician with second year medical students in an elective activity within the medical genetics course. Students were asked to read the novel and report on the clinical presentation, patient and family perspective, the acceptance of the diagnosis and role of the physicians involved. Guided group discussions were done with context expert clinicians. A quantitative and qualitative evaluation using a self-administered questionnaire and focus group of this intervention was done.
Summary of results: Twenty-eight percent of the students (22) participated in this elective activity and all reported it as a very intense and motivating learning experience. Both evaluations confirmed that the objectives for this activity were achieved. The novel makes the students reflect on the patient and family perspective and how they want to be as physicians.
Conclusions: This activity has repeatedly (4 years) shown the impact of a novel approach for integrating knowledge of genetic disorders with the emotional impact on the patient, family and treating physicians.
Take-home messages: Humanities are a very creative and motivating educational strategy causing an immense emotional impact on the student.

3CC/10
Comparison Diagnoses of Medical Students versus Residents in Difficulty

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Background: Across the educational continuum, individuals encounter difficulties for many reasons. Researchers have studied outward, observable behaviors and underlying causes. For this study, we compared behavioral difficulties and diagnostic formulation for medical students versus residents. All were referred for multidisciplinary evaluation secondary to difficulties in their programs. We hypothesized that lapses in professionalism would be the primary concern for both groups. We expected that diagnoses and personality patterns would be similar, as personality patterns are static across development.

Summary of work: Subjects were medical trainees referred to an assessment and treatment center for professionals. Two groups (students (N=15), residents (N=35)) were compared on reasons for referral, competency area of difficulty, and diagnostic formulation.

Summary of results: Students and residents were most likely to be referred for issues involving professionalism. Residents were nearly twice as likely to have failures in interpersonal and communications skills and/or system-based practice. Medical students were significantly more likely to have Axis I diagnoses while residents' primary diagnosis was a personality disorder.

Conclusions: Appropriate remediation requires an understanding of the area of difficulty and underlying causes of that failure. At least in our sample, medical students in difficulty were more likely to be suffering from clinical diagnoses.   Difficult and challenging personality issues appear to become more apparent when trainees are engaged in clinical rotations.

Take-home messages: Reason for referral didn't discriminate between groups. Similar to clinical medicine determination of appropriate treatment/remedial course first requires thorough assessment.

3CC/11
First Code of Conduct for Thai Medical Students: Self-Perception vs. Observed Practice in 2013

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Background: A Code of Conduct (13 sections) for Medical Students was announced in November 2012 by consensus of the Thai Medical Students' Association Committee and the Thai Medical Council. The implementation—as judged by medical students themselves vs. their practice as observed by relatives of patients, nurses, staff and residents—was the focus of our research.

Summary of work: A self-administered questionnaire was distributed at Khon Kaen Hospital to each of: (a) 44 graduating medical students, (b) 35 relatives, (c) 39 nurses, (d) 31 staff and (e) 8 residents. Student self-evaluations of practice were rated using a 5-point Likert scale while the observations of their practice were recorded for a comparison.

Summary of results: The response rates were (a) 88.6%, (b) 80%, (c) 87.2%, (d) 96.8% and (e) 100%, respectively. Most students "strongly agreed" or "agreed" with the practicability of the code. Generally, this was comparable to the "strongly satisfied" or "satisfied" patient relatives, staff and residents; however, <50% of nurses were "satisfied" on 3 of the 13 subsections. Students ranked "not gaining from patients except education" as the easiest and "efficiently using technology whenever economical" as most difficult. Some staff and nurses reported medical students substandard communication skills and disrespect to experienced medical professionals.

Conclusions: The discrepancy between students positive self-evaluation and their actual performance needs to be addressed; particularly their overconfidence.

Take-home messages: Practice of the Medical Students Code of Conduct will benefit both patients and working relationships among healthcare professionals.

3CC/12
Changes in medical students' perception of a good doctor as they progress through medical school

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*(Presenter: **Noriko Takahashi Okuyama**, Keio University, School of Medicine, Musculoskeletal Reconstruction and Regeneration, 35 Shinanomachi, Shinjuku, Tokyo 1608582, Japan)*

Background: Developing an appropriate attitude and sensibility of professional values and behaviour is a consistent goal of medical education. There is comparatively little understanding of how medical students' attitudes and values of professionalism develop during the course of their medical education.

Summary of work: A study was carried out to analyse the changes in Japanese medical students' perception of a good doctor as they progressed through medical school. Year 1, 4 and 5 students participated in this study. The relative importance of each of seven attributes of a good doctor: 'excellence', 'accountability', 'basic medical knowledge', 'clinical competences in therapy', those in 'diagnosis', 'morals and ethics', and 'communication skills' was estimated by a statistical method, Conjoint analysis.

Summary of results: Year 1 students most emphasised 'clinical competences in therapy', followed by 'communication skills'. Unlike the results of the previous studies, 'morals and ethics' was the fifth importance of them. Gradually from Year 1 to 5, the relative importance of 'communication skills' declined, and in contrast, those of 'clinical competences in therapy' and 'diagnosis' increased. Year 5 students emphasised less on 'morals and ethics' and 'excellence' than Year 4 and 1 students did.

Conclusions: The students appeared to change their attitudes and values of professionalism as they progressed through medical school. The preferences of Year 5, who had experienced clinical clerkship, seemed to become more realistic than those of Year 1.

Take-home messages: The students' development was influenced by informal and hidden curricula in clinical

settings. This seemed to reflect social demands for doctors and not necessarily be negative as generally believed.

3CC/13
Yellow Card – Professional Attitudes and Behaviour

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Background: Forming attitudes, cultivating desired behaviour and ultimately promoting professionalism is an important aspect of medical education from day one. To encourage students to adopt the GMC's (General Medical Council) guidance "Medical Students: Professional behaviour and fitness to practise", the School of Medicine, University of St Andrews, introduced a yellow card warning system.
Summary of work: For one cohort of medical students (n151), year of entry 2010, yellow card data was recorded for three years. The data was entered into an Excel spread sheet and included date of card issue and the reason for issue. We have reviewed and identified trends in delivery of yellow card warnings. The results will be presented.
Summary of results: The number of warnings issued varied for each semester. Distribution was not uniform throughout the semesters. We have reviewed and identified trends in delivery of yellow card warnings. We reflected on these trends and propose how the yellow card system influenced and improved students' understanding of professional behaviour.
Conclusions: The yellow card scheme is an effective tool to influence attitudes and behaviour and make students more aware of the GMC's guidance: "Medical Students: Professional behaviour and fitness to practise"
Take-home messages: Raising awareness of professionalism using a yellow card system from day one at medical school influences students' attitudes and behaviour.

3DD Posters: Problem Based Learning
Location: South Hall, PCC

3DD/1
PBL - What next?

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Background: Problem Based Learning (PBL) was introduced into medical education in 1969 and has become an internationally accepted educational tool. It has, however, shown little evolution in over 40 years.
Summary of work: Junior doctors in academic posts in medical education at Hull York Medical School (HYMS) are investigating the potential development of PBL within HYMS. A preliminary review of published literature suggested there was no universally accepted definition of PBL. To explore its development, it is important to clarify what PBL is perceived to be.
Summary of results: A literature review confirmed that there was no universal definition of PBL, although recurrent themes were highlighted. There is little published literature on how PBL should be developed. In comparison to traditional courses, PBL seems to be effective in social and cognitive domains. Its relative effectiveness in the acquisition of knowledge remains contentious. This may in part be due to the complexity of variable implementations of PBL.
Conclusions: Research should be conducted into defining what PBL is and how it should be developed. Qualitative research methods are being used to answer these questions.
Take-home messages: We should avoid complacency in our use of PBL. Educational research can be used to develop junior academics and to inform educational development and policy.

3DD/2
10 years' experience of PBL in Kyungpook National University School of Medicine

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Background: The purpose of this study is to investigate the students' satisfaction in PBL, the students' preference for the number of PBL sessions per week and per case, the sequence of PBL and related lecture, and the preference for the presence of a tutor in the group.
Summary of work: The target period in our study is from 1999 to 2009, and target students are from second year. Satisfaction with PBL was investigated in 2002, 2005, and 2009. The rest of the study topics as mentioned above were investigated in 2009. Surveys were conducted during PBL class. We had a focused interview with group leaders and some students after class.
Summary of results: The scores of PBL satisfaction based on a 7-point scale were 4.95 points in 2002, 5.62 points in 2005, and 5.00 points in 2009. 69 respondents (70.5%) among 97 students preferred to study throughout the semester to the short term. Among 109 students, 92 respondents (84.4%) preferred to meet once a week and to study a case every two weeks. 59 respondents (54.1%) preferred attendances of tutor to absences in the group. It was investigated that 94 respondents (95.9%) in 2004 and 57 respondents (52.3%) in 2009 preferred to learn PBL case related to lecture contents. 85 respondents (78%) in 2009 preferred to take a PBL session after lecture.
Conclusions: As a result, in order to increase students' satisfaction with PBL, it is necessary to arrange the date and the time of PBL session so that students can concentrate on PBL. Secondly, we should select PBL case to develop the ability of students' problem solving by arranging PBL case not to be synchronized with ongoing lecture contents.
Take-home messages: Finally, we should help make an atmosphere where students feel free to talk during PBL session.

3DD/3
Teaching Neurosciences in an Integrated Problem-Based Learning Program in an Undergraduate Medical Curriculum: Students' and Tutors' Perceptions

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Background: This paper aimed to briefly explore students' and tutors' perspectives regarding relevance, stimulation and amount learned from ten problems presented as triggers of learning in the Neurosciences, Vision and Behaviour Block in a problem-based curriculum at the College of Medicine, King Saud bin Abdulaziz University for Health Sciences. It is well known that the nature of student learning in PBL is largely dependent on the quality of the cases presented to them.
Summary of work: To describe teaching of the Neuroscience, Vision and Behaviour block in an

integrated PBL undergraduate medical curriculum and to discuss students' and tutors' perceptions of relevance, stimulation and amount learned from the problems used as triggers for learning.

Summary of results: Students and tutors had favorable, congruent perceptions of amount learned, stimulation and relevance of neuroscience problems in a Saudi Arabian healthcare context. Open-ended comments from both groups were highly supportive of the block objectives, content and integrated teaching.

Conclusions: It is important to evaluate amount learned, relevance and stimulation of problems as triggers of learning in a problem-based curriculum. This is particularly important where problems have been developed in a socio-cultural context that is different to that in which they are being implemented. Often students' perspectives are the only evaluation feedback elicited but tutors are also well placed to provide insights into functioning of PBL problems.

Take-home messages: Exploring the congruence of students' and tutors' perspectives has been helpful when determining necessity for neurosciences block modifications, emulating a PBL collaborative knowledge-building approach in curriculum development.

3DD/4
PBL in Parasitology: A pilot project in a transforming medical school

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Background: In a transforming medical school, where a competency-based curriculum is due to replace a traditional one, there is a need for gradual implementation of student-centered, competency-developing learning strategies. This is a particular challenge in basic disciplines such as Parasitology. We describe an attempt to develop a PBL course to complement traditional teaching methods for third-year medical students.

Summary of work: The traditional Parasitology course requires students to complete 3 activities for each program topic: lectures, practical sessions and tutorials. We substituted the latter for PBL-type sessions based on cases depicting the clinical presentation of various parasite groups to promote in-context learning within traditional learning objectives. Cases were delivered to students, via the Edmodo platform, one week prior to each session in which four randomly-selected students make a 15-minute presentation of their reasoning and conclusions. A further 45-minute general discussion follows, to construct group-learning. Students are encouraged to use a structured clinical reasoning approach to problem-solving. Students' performance is assessed after each session by the tutor, with summative purposes, using Elizondo-Montemayor's

criterion-referenced system. Formative self-assessment and peer-assessment is carried out periodically.

Summary of results: Students are followed up and their performance in the traditional course is compared to a control group. Self-directed learning skills are assessed before and after the course in both groups, as is student satisfaction with the learning process.

Take-home messages: PBL, adapted to a traditional curriculum is a suitable method to enhance knowledge application and self-directed study in Parasitology. Furthermore, it helps to familiarize students and faculty with strategies aimed to develop significant learning.

3DD/5
Satisfaction of medical students towards a change from problem-solving approach to problem-based learning in a 3-week renal system block

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Background: In 2012, problem-based learning (PBL) activity was initially implemented as the first session of the renal system block at Srinakharinwirot University. Some faculty members, however, disagreed to this change as they believe that undergraduate students would be more satisfied and perform better if lectures in anatomy and physiology of the renal system are provided prior to problem-solving sessions.

Summary of work: The authors investigated whether a change from problem-solving to PBL affected exam performance and satisfaction of students on teaching and learning activities by comparing the data obtained from students completing the course in 2012 and the previous year.

Summary of results: A change from problem-solving to PBL did not significantly affect the performance of students on the in-house examination, with an average score of 71% in 2012 versus 73% in 2011. In addition, there was no significant difference of the satisfactory scores on an evaluation of teaching and learning activities between the year 2011 and 2012, with the average scores of 4.47/5 and 4.48/5, respectively. Importantly, most students (95%) highlighted the challenge of PBL scenario and the fulfillment of supplementary lectures as they came to the class with meaning instead of just for simply listening.

Conclusions: Hence, students were satisfied with structuring PBL at the beginning of the course although it is challenging.

Take-home messages: To improve performance of students, the faculty should familiarize students with PBL rather than holding a lecture.

3DD/6
Problem based learning: a more rewarding learning experience?

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Background: There is evidence demonstrating that problem-based learning (PBL) is a more rewarding learning experience for students, and that students generally favour PBL against 'lecture-based' traditional pedagogy. There is, however, limited research that compares student satisfaction and their learning behaviours when both teaching methodologies are applied to a single cohort. This study aims to reflect on the effectiveness of current teaching techniques, endeavouring to increase student enjoyment in learning.
Summary of work: A cross-sectional study of 260 undergraduate medical students at the University of Birmingham was undertaken, with questionnaires exploring students' preferred teaching methodology, learning resources and their learning behaviours.
Summary of results: An overwhelming majority of students preferred traditional teaching over PBL, with a more accessible structure and greater clarity being fundamental reasons. The internet was the commonest resource used in PBL study, whereas textbooks were the most used resource in traditional learning. There is no significant difference between both teaching methodologies in the average time students engaged in library study.
Conclusions: Despite the growing integration of PBL into medical school curricula, this study demonstrates a population where the majority of students prefer traditional pedagogy. To achieve a more rewarding learning experience from PBL whilst enabling students to develop responsibility for managing their own learning needs, we recommend a phased integration of PBL into medical education with a concerted effort to establish a positive PBL ethos with clearer objectives which students can use as a foundation for lifelong learning.
Take-home messages: It is necessary to identify the positive aspects of traditional teaching and appropriately implement this into PBL methodology.

3DD/7
Problem-based learning assessment in school might predict the medical students' performances in pediatric clerkship training

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Background: The problem-based learning (PBL) is a strategy for medical learning between school to clinical workplace learning. We want to explore whether the assessments in PBL might predict the clinical workplace performance later.
Summary of work: Ninety-five medical students from Chang Gung University received PBL training in the fourth year at school and clerkship pediatric training in the fifth year at Chang Gung memorial hospital. Six different PBL training scores in school were compared with the five different scores in pediatric clerkship training.
Summary of results: The relationship between different PBL scores and clinical pediatric assessment scores showed moderate, low, or poor correlation. We found that PBL scores of behavior assessment from tutors is a better prediction factor than PBL written test. The students in upper 25% ranking of PBL assessment from tutors had better performances in three kinds of pediatric clerkship assessments (case-based discussion score, assessment score by resident supervisors, and on duty performance score, all $p<0.05$) than students in lower 25% ranking of PBL assessment from tutors.
Conclusions: PBL assessment scores by tutors in school might reflect the medical students' learning and working ability in the future and might help us to predict or find students to improve their clinical learning strength.
Take-home messages: PBL assessment scores by tutors might predict the medical students' learning and working ability in the future.

3DD/8
Students', Tutors' and Experts' perspective of the Effective PBL Problems

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Background: A PBL problem should be designed as an effective starting point for students to attain learning objectives. Thus, a continuous monitoring, evaluating, and improving the PBL problems should be done systematically. The aim of this study is to evaluate the effectiveness of PBL problem by involving students, tutors and experts of PBL principles. We do hope that the results of this evaluation could give us about the importance of maintaining the quality of PBL problems.

Summary of work: A survey by using questionnaire based on six factors of an effective PBL problem was conducted to obtain students, tutors and experts perception towards the effectiveness PBL problems used in tutorial session. The perceptions were then analysed by using descriptive statistic. Four open ended questions included in the questionnaire were used to get better understanding and explanation of quantitative result.

Summary of results: Some differences among students, tutors and experts in rating the overall quality on each problem were found. The strength and the weakness of each problem were also obtained. Each group of participants had their own concern regarding the most important factor for an effective PBL problem.

Conclusions: The result of this evaluation could reflect the effectiveness of PBL problems in achieving students' learning objectives from different viewpoints: students, tutors and experts. This valuable information can be used by problem designers and their institutions to monitor and improve the quality of PBL problems continuously.

Take-home messages: Whenever you have a problem, always see it from different viewpoints.

3DD/9
Learners' success vs. learners' satisfaction: different sides of the same coin? Hints from evaluation data of a PBL-seminar on basic scientific competencies in medicine

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Background: As the first step in a longitudinal thread on scientific competencies we developed a PBL-seminar for first year medical students. PBL-cases focused on basic issues of scientific methods and approaches. To evaluate the seminar we used different self-assessed variables related to students' learning success as well as to their satisfaction with the seminar.

Summary of work: 340 students evaluated the seminar at the end of their first year by means of questionnaires.

Summary of results: In their self-assessment students stated that their competencies had increased with regard to the learning objectives (M=1.94 vs. M=3.38, p <.001, Cohens d = 1.98). A pre-post-assessment of their scientific competencies by means of the respective scale of the Freiburg Questionnaire to Assess Competencies in Medicine (FKM, Giesler et al. 2011) also indicated an increase in competency (M=2.82 vs. M=3.11, p<.0001, Cohen's d=0.47). Students were also positive with regard to the quality of the discussion process (Group Interaction Questionnaire, GIQ, Visschers-Pleijers et al. 2005) and the guidance of their tutors. However, when students were asked in the end-of-year evaluation to rate their learning success in the seminar and their satisfaction with the seminar overall, results were rather poor (M=3.64 and M=3.54, 6-point scale, 1=very good, 6=very poor). In addition, qualitative data also indicated that many students were rather discontent with the seminar.

Conclusions: The inconsistency of these results highlights the importance of understanding possible influences on the evaluation process (e.g. point in time, reliability and validity of items).

3DD/10
Using Learning Analytics to Evaluate the Efficacy of Blended Learning in PBL Based Medical Course

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Background: Learning analytics is a new and emerging area of research that aims at measurement and analysis of data about learners and their contexts, for purposes of understanding and optimizing the learning and the environments in which it occurs.

Summary of work: We used data of 143 students in Principles of Disease course, Qassim College of Medicine. Data recoded were page hits; forum posts and reads, logins, session times, and online formative assessments. Daily, weekly and total students' data were monitored and analyzed. An algorithm for every parameter was proposed and calculated and a collective algorithm. The efficacy of individual e-learning components on positive students' outcome was statistically analyzed by correlation coefficient and multiple regression analysis.

Summary of results: There was a positive correlation between e-learning usage and students' final outcome. Online formative assessment algorithm, logins algorithm, time algorithm and total hits were also positively correlated with students' outcome. There was

a positive correlation between final assessments components OSPE, MCQs, SEQ, MEQs with the logins, online assessments, and time algorithm, but not with the forums. Using regression analysis; Outcome was positively associated with the e-learning algorithm however, the association was weak.

Conclusions: Our data show clearly that e-learning has a positive impact on students' final outcome. The important parameters are the students' frequency of using online course and time he spends online. The correlation was not strong because in blended learning there are other factors contributing to the students' final outcome.

Take-home messages: Learning analytics should be used for understanding course usage and optimizing delivery.

3DD/11
16 years later... still 'trying not to teach'? Follow-up interviews with tutors about facilitating medical students' active learning

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Background: The Tomorrow's Doctors (2009) learning outcomes for 'the doctor as a professional' continued to encourage better ways for learning, tolerating uncertainty, and reflective practice. Following the problem-based transformation of the Liverpool MBChB curriculum in 1996, interviews with the first-ever cohort of problem-based learning facilitators (n=34) revealed their generally positive approach to that major change in educational philosophy. They were concerned though at their own fallibility about intervening without 'teaching'. Facilitating active learning (focused on: clinically relevant, integrated knowledge and tolerating uncertainty) has remained a worthy yet formidable goal, but how do the remaining tutors from that original cohort view this now?

Summary of work: Aim: To follow up and explore staff reflections about their long-term role in facilitating medical students' active learning. Setting: Liverpool MBChB curriculum. Participants: The 10 first-ever problem-based learning facilitators remaining actively involved to-date. Method: Inductive analysis (within the pragmatism paradigm) for themes from semi-structured interviews (a 16-year follow-up).

Summary of results: The facilitators reveal how their own personal epistemology developed and met challenges (reflecting on their own descriptions and concerns from their original interviews).

Conclusions: Long-term commitment to 'trying not to teach' raises crucial issues about facilitators' own personal epistemology.

Take-home messages: Reflective follow-up gives valuable insights about the vicissitudes of 'trying not to teach'.

3DD/12
The development of a quantifiable PBL model and its comparison to traditional PBL and didactic lecture

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Background: Group-Problem-Solving-Simulation series developed by HumanSynergistics are often used and highly regarded for team-building and business-skill development in business schools. Such simulations require participants to rank a list of items or activities according to some objective (eg. surviving) and compare quantitatively their individual and team solutions to an expert one, which gives students an opportunity to learn about their personal influence style and their effectiveness as a team member. We used their survival series for PBL team-building since 2008 and got overwhelmingly positive responses from students. But because of its non-medical nature, limited amount of cases and without learning step, it can't improve medical knowledge and skills and students are losing interests because they can easily get answers from seniors.

Summary of work: We developed some medical cases in similar style and formed a new PBL model with some modifications. 87 undergraduate students (11 groups) were enrolled to experience didactic lectures, traditional PBL and the new PBL in the same semester. A Likert scale with 9 aspects was used to collect the students' perceptions towards the three models. Multivariate-dependent-variable analysis and Student-Newman-Keuls (SNK) test was used to determine the differences among and between the models and groups.

Summary of results: The new model was ranked more effective than the traditional PBL and lecture in Knowledge-Retention, Knowledge-Applying and Learning-Interests. There're no differences between the new and traditional PBL in Learning-Difficulty, Motivation in searching and information management, Understanding Teamwork, Clinical Reasoning, Communicating and Educating, but both of which were ranked better than that of lecture except Learning-Difficulty. Post-hoc tests of homogeneous subsets showed less variability among PBL groups.

Conclusions: The New PBL Model seems great but more samples are needed to confirm the findings.

3DD/13

The correct diagnosis and diagnostic reasoning strategies of PBL students and its change with time

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Background: Problem-solving strategies are highly dependent on the availability of organized, interrelated, relevant knowledge. Different curriculum design may influence students' diagnostic accuracy and diagnostic reasoning strategy (DRS).
Summary of work: 8 nephrology clinical vignettes (CV) of different complexity and difficulty from 4 clinical presentations (CPs) were developed. 14 3rd-year and 13 5th-year medical students, from a 7-year program and taught through a near-full PBL curriculum in the third and fourth years, joined this study. Participants were asked to solve the problem in each CV before, right after and 6 weeks after they finished the nephrology block (3rd year) or the nephrology clinical rotation (5th year). They were instructed to speak out his or her thinking as much as possible after reading each case.
Summary of results: Overall correct diagnosis for the 3rd year increased right after the course and then declined 6 weeks later, this change was less obvious for the 5th year student. For both cohorts, the diagnostic accuracy was related to CP and degree of case difficulty. Hypothetical-deductive reasoning was not the predominant DRS used. Those PBL students tended to use basic science knowledge to explain patient's problem or abnormal laboratory data and could reason out the underlying etiology or diagnosis sometimes. They also tended to jump into a diagnosis just based on several clinical cues.
Conclusions: PBL students tend to use physiologic knowledge to explain patient's problems, to grasp part of the cues to intuitively make a single diagnosis, and backward-directed hypothetico-deductive mode of reasoning is not the predominant one.
Take-home messages: Need to strengthen the way of learning concepts to improve students' diagnostic accuracy and the strategy used to solve patients' problems.

3DD/14

Using the "New" PBL to Introduce Students to Evidence-Based Medicine

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Background: Practitioners of Evidence-Based Medicine (EBM) use current best evidence to inform their patient care decisions. Journal clubs or structured lectures, focusing solely on teaching critical appraisal skills in the absence of a clinical context, may be less effective for teaching students principles of EBM.
Summary of work: The "5 A's" of EBM practice (Assess, Ask, Aquire, Appraise, Apply) were introduced to our first year medical students for use in their Case Inquiry Program (the "new" PBL). Each week, a student EBM leader was designated and assigned the task of developing a question related to the case, searching the literature for an article of interest, critically appraising the identified article, and briefly presenting findings to the group. The presentations occurred during "resolution" of the case, with the discussant specifically stating how the evidence should influence decisions about the "paper" patient's care.
Summary of results: EBM was successfully integrated into the Case Inquiry Program. Fifty percent of students reported that incorporation of the EBM program did a "good" or "excellent" job of improving their critical appraisal skills and the majority indicated that it enhanced their understanding of the patient within the case.
Conclusions: We have developed a novel and successful approach to teaching EBM to medical students using a small-group patient-focused format.
Take-home messages: Early integration of EBM skills into a PBL curriculum is well-received by students and enhances the small group experience.

3DD/15

The Use of PBL to underpin veterinary basic sciences training - the Adelaide Experience

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Background: The recently established University of Adelaide Veterinary School adopted a blended curriculum after community consultation to decide the model of curriculum delivery. The aim was to enhance student engagement with basic science content in the BSc component of the combined BSc/DVM degree program by underpinning this content with clinical cases presented in PBL format. The School also wanted to engender team-based learning, promote independent study and enhance earlier confidence with clinical terminology use.

Summary of work: Initially, there was one facilitator per PBL group of eight students. However over the first four years of the program, faculty availability dictated a shift to one facilitator per three groups of eight students each and three weekly sessions to complete the case. PBL sessions used paper-based cases to underpin the systems-based integrated anatomy and physiology subjects. In year three of the BSc, infectious disease case material was introduced along with the systems-based anatomy and physiology. Both individual testing and group MCQ assessments were performed at the end of each case and student evaluations (SELTS) each semester.

Summary of results: Non-traditional PBL use was successful in engaging students in their basic science content (high SELTS), illustrated the value of teams (higher team MCQ scores relative to individual scores) and encouraged team learning and confidence in the use of clinical terminology by preclinical students.

Take-home messages: Non-traditional use of PBL was successful in engaging students in their basic science content, encouraging confidence in the use of clinical terminology prior to students entering their clinical years and highlighting the value of teams.

3DD/16
Training of Scientific Methods for First Year Medical Students: First Experiences with a Problem-based Curriculum at the Freiburg University Medical Center

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Background: Topics with a focus on theoretical content are perceived as tedious by many medical students and are often marginalized. This view clashes with a competency oriented view of health professionals who need considerable scientific and methodological knowledge and skills. Early introduction and longitudinal anchoring of training in the medical curriculum can induce higher motivation and better understanding of the professional relevance in medical students.

Summary of work: Learning objectives for first year medical students were developed by experts from different medical and theoretical disciplines. Authentic cases based on exemplary scientific studies were constructed accordingly and aligned in a Problem-based curriculum. Performance on cognitive learning was measured with a written test. Self-assessment of competencies and attitudes of students were collected.

Summary of results: The curriculum was implemented for the first time with 340 students, 32 student research assistants and 18 expert trainers in the summer semester 2012. Test results revealed that students had reached the learning objectives. Students stated that their competence had increased with regard to each of the learning objectives. Despite these achievements a number of students complained that they had not learned enough and overall students were only moderately satisfied with the educational intervention.

Conclusions: A problem-based curriculum on scientific methods for first year medical students was established successfully. Many issues for improvements remain.

Take-home messages: We established a problem-based curriculum on basic scientific methods for first year medical students in which students can actively acquire foundational knowledge on evidence-based medicine, literature retrieval and biometry.

3DD/17
Can concept mapping support discussion in tutorials? A case study

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Background: Mind mapping and concept mapping are established techniques to visualize and structure knowledge. There are numerous software packages. Our aim is to explore if and how these techniques can support Problem Based Learning, focusing on the function the stakeholders' perceptions. We report results of the first case study.

Summary of work: During the first course of the Health Sciences bachelor tutors were stimulated to ask one or two students to make concept maps during self-study time and to use these during the report phases in group tutorials. Students and tutors filled in a brief questionnaire (with 6 closed and 5 open questions) during their last meeting. Participants were 238 students divided over 26 tutor groups and 15 tutors.

Summary of results: About half of the students and tutors reported that concept mapping has been used regularly to often in the PBL report phases. Almost two thirds of the students think that concept mapping was fairly to very useful. A third of the students intends to use it in future and another 41% thinks they may do so. The majority of tutors valued the use of concept mapping recommends it to students.

Conclusions: The comments show that some students think that concept mapping is useful, provides an overview and structures discussions. Others do not see additional value, or report that there was not enough time. Tutors stress that the value of concept mapping depends on the topic or problem that is studied and the preferences or learning styles of individual students.

Take-home messages: Concept mapping can support PBL groups especially within problems aiming at integration of concepts. It may not fit all domains. Students should practise using concept mapping in order to decide whether the technique is valuable to them.

3FF ePosters: eLearning 2
Location: North Hall, PCC

3FF/1
Students' perception of an interactive multimedia application as a support for teaching of breast semiology

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Background: Medical education based on informatics technology promotes significant innovations that complement the traditional education.
Summary of work: This work aimed to evaluate the acceptance of a didactic application in teaching mammary semiology using computational resources. After the students have interacted with the application, they should answer six questions on a Likert scale with five levels of appreciation, ranging from "totally disagree" to "totally agree".
Summary of results: Seventy seven students filled the Likert scale. As for ease of application usage, 98.4% agreed or totally agreed with the statement. In relation to the application being enjoyable to use, 94.7% fully agreed or agreed. When it was stated that the application provides immediate feedback, 71.3% of the students agreed or totally agreed. Regarding the assertion that the application was didactic, 92.7% of the students agreed or totally agreed with the statement. Asked if applications with other similar topics should be created, 90.8% partially or totally agreed. When asked if this type of application is enough to replace teachers, 69.5% of the students disagreed partially or totally disagreed.
Conclusions: The application was well evaluated by the students. However in the students' opinion, the presence of the professor is still important in the teaching of mammary semiology.
Take-home messages: Multimedia applications are important tools in learning and are well accepted by the students, but the teacher is still essential.

3FF/2
Enthusiasm vs. study requirements: motivation of students to take part on contributing to a wiki-based textbook and quality of result

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Background: WikiSkripta (www.wikiskripta.eu) is a wiki-based textbook for medical students running in Czech and Slovak language. It is available to all medical schools in the Czech and Slovak Republics. Today, it is the most used educational web for undergraduate medical study in both countries. It is completely opened both for reading and writing new articles.
Summary of work: WikiSkripta are still more used by medical teachers to stimulate students for active learning. Some teachers ask students to write an article for WikiSkripta as a requirement for obtaining a credit. However, the quality of articles created in this way seems to be lower than quality of similar articles written by students spontaneously. We compared references listed in student articles that were written spontaneously and in articles that were written as a seminary work required for credit.
Summary of results: Articles written by students spontaneously cite more relevant sources. Most references are textbooks, monographs and papers from peer-reviewed journals. In contrary, articles written on demand of a teacher contain most frequently only one relevant source. Potentially inaccurate sources prevail in this case: web presentations of commercial companies, non-reviewed web pages and Wikipedia.
Conclusions: It seems always controversial to allow students to write study materials for them. We demonstrated that enthusiasm as motivation leads to more reliable results than requiring a text for awarding a credit. Checking the article by teacher does not seem to improve it. Therefore, WikiSkripta are going to introduce a peer-review process.
Take-home messages: Students can significantly contribute in writing educational materials when they do it spontaneously. Forcing them for similar contribution leads to texts of inferior quality.

3FF/3
E-learning about using interpreters in medical interview: improvement of students' knowledge and self-efficacy

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Background: Though studies have found that professional interpreters improve clinical care for patients with limited English language proficiency, healthcare providers still make little use of such interpreters. We evaluated a self-developed e-learning for medical students, which aimed to increase their knowledge and self-efficacy in working with interpreters.

Summary of work: 128 fourth-year medical students took this e-learning in 2012-2013 during their clinical rotations, as part of training in cross-linguistic consultations. In the e-learning they answered questions relating to three patient-physician-interpreter video vignettes, and compared their answers with responses from experts. Before and after the e-learning, they completed a questionnaire which tested relevant knowledge and self-efficacy (e.g. 'how prepared do you feel to care for patients who do not speak Dutch'), with in both cases scores ranged from 1 (lowest) to 10 (highest).

Summary of results: Our results indicate that the median score of knowledge increased after the e-learning (median 9.00, IQR 2.00 vs. before the e-learning: median 6.00, IQR 4.00; $p<0.001$). A similar pattern was observed for self-efficacy. Before the e-learning the median score was 4.00 (IQR 2.00) whereas after the median score was 7.00 (IQR 2.00), with a statistically significant difference ($p<0.001$).

Conclusions: Our e-learning resulted in improved knowledge and self-efficacy in arranging and using professional interpretation services among fourth-year medical students. Such interactive educational formats (ideally in a form of blended learning) may lower the barriers for current and future healthcare providers to use professional interpreters in clinical practice, improving quality of services for a multi-ethnic patient population.

Take-home messages: An e-learning is an effective way to teach medical students to work with professional interpreters.

3FF/4
Evaluating the Utility of the Pain Education e-Tool: A Mixed-Methods Study with Medical Students and Educators

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Background: This study reports on feedback obtained from second-year medical students and educators reviewing the Pain Education e-Tool (PEET), two virtual patient cases designed to integrate chronic and acute pain management within undergraduate medical education.

Summary of work: Mixed-methods exploratory study. Data sources included 80 questionnaires and 2 focus groups with students, as well as 9 interviews with educators.

Summary of results: Convergent and divergent themes were identified. Both students and educators agreed that the tool was innovative, but that the navigation could be improved. The students added that the PEET was more enjoyable than traditional didactic teaching modalities; 71% of them reported that they would like to use similar web-based methods to learn about other medical issues. According to the educators, the tool was comprehensive and offered an excellent model to support learning about the specifics of therapeutic communication about pain. The feedback gathered is being integrated into the latest version of the PEET.

Conclusions: There was unanimous support for virtual patient cases as a comprehensive and innovative way to integrate pain in undergraduate medical curricula. The involvement of medical students and educators in the improvement of the PEET contributes to its acceptability and usability. The use of virtual patient cases is a promising avenue for increasing the quality of undergraduate medical education about pain.

Take-home messages: This utility study involved end users in the preliminary assessment of the PEET, demonstrating the utility of virtual patient cases to teach undergraduate students about pain management.

3FF/5
GeriatriX, a serious game for medical students to teach complex medical reasoning. Let's play!

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Background: The current medical curriculum is disease-oriented and less focused on patient-oriented preferences. Students should be better trained in multimorbidity and learn to question the standard diagnostic and therapeutic approach and weigh it's

appropriateness in the context of the individual patients with their specific preferences and multimorbidity.

Summary of work: To train students this complex medical decision making in an attractive and safe way, we multidisciplinary developed the serious game GeriatriX. Students weigh in GeriatriX the following criteria: 1) patient preferences, 2) appropriateness and 3) costs of medical care. We chose for a serious game because it is fun and fits in with an active, playful and experiential learning method in an authentic context.

Summary of results: GeriatriX was developed in a short period of six months. It contains the same medical problem (anemia) in three different elderly patients (context). This challenges students to explore different diagnostic and therapeutic strategies and gives insight in the consequences and costs of their choices. While playing they automatically receive feedback on their choices with respect to patient centeredness, medical appropriateness and costs of medical care. Preliminary results in 29 students showed that they found GeriatriX fun (3.9±0.6; mean ± standard deviation; 5 point Likert-scale). They were satisfied with the given feedback (3.4±0.9) and after playing they were more aware of the weighing of different aspects in medical decision making in geriatric patients (4.0±0.8).

Conclusions: GeriatriX is an innovative, challenging and promising educational tool. The next step is implementing GeriatriX in the medical curriculum and research its merits.

Take-home messages: GeriatriX. Let's play medical decision making!

3FF/6
Learning Analytics in Screen Based Simulation of Radiograph Interpretation

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Background: Radiology simulations allow deliberate practice using hundreds of image-based clinical cases. Learning analytics can be defined as "the use of learner-produced data and analysis models for predicting and advising people's learning." In this study, we apply learning analytics to a screen-based simulation of radiograph interpretation. Objective: To investigate candidate learning analytic parameters for radiograph interpretation using an expert-novice comparison.

Summary of work: We recruited low experience (LE) medical learners including 20 medical students and 18 residents, and a high experience (HE) group which included 5 attending emergency physicians and 3 radiologists. Using a web-based program that simulated the clinical presentation of 234 ankle radiographs in an emergency department, participants classified cases as normal or abnormal; if "abnormal" was selected, they specified the location of the abnormality. Immediate feedback on the diagnosis was provided. The system

recorded the following process measures: total time on case, time on each radiograph view, number of radiograph views examined, and frequency of re-review of the case history.

Summary of results: The mean (SEM) time on each case for the LE and HE groups were 35.8 (0.45) and 52.6 (1.3) seconds, respectively (p<0.0001). The LE spent an average of 4.0 (0.09) seconds on each view, while the HE group spent 7.2(0.23) seconds, p=0.02. The LE aggregate toggled amongst the views an average of 4.00 (0.02) times per case, while the HE group performed this 4.9 (0.05) times per case, p=0.04. The HE group was 1.7 times as likely as the LE group to re-review a case, although this was not found to be statistically significant (p=0.13).

Conclusions: Process data collected from an online radiograph interpretation simulation correlate with Expert-Novice differences.

Take-home messages: Simulation environments have the advantage of providing rich process information which, when combined with performance measures, can provide insight into the learner's interpretation process.

3FF/7
Optimizing the process of eLearning development

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Background: The Education&ICT programme at the University Medical Center Utrecht aims at enabling ubiquitous learning for students and employees. In this programme a large number of high quality eLearning modules are being developed.

Summary of work: To produce eLearning more efficiently we wanted to improve the development process. All steps in the process and the roles and responsibilities of people involved were described, points for improvement were identified, and the process was redesigned. We further optimized the process during the development of two proof-of-concept eLearning modules. This process has now been applied successfully to develop eLearning on a variety of medical subjects.

Summary of results: The development process consists of five phases: 1) design and pre-production 2) production 3) testing 4) implementation and 5) evaluation. During the design phase the learning goals and content are defined and the functional, graphic, and technical aspects are described. A storyboard (text, questions, and multimedia elements) is written by subject-matter experts in close collaboration with an educational advisor. During the production phase, multimedia elements are produced, the graphic design is applied and the module is built using the authoring tool. Next, the module is tested by subject-matter experts,

developers, and users. The module is further improved based on the test results and then made available to users via the virtual learning environment. Finally, users evaluate the module via an online questionnaire.

Take-home messages: eLearning can be developed more efficiently by first describing and optimizing the development process and clearly defining roles and responsibilities of the people involved.

3FF/8
Medical Education in a Digital Age: Sociomaterial Considerations

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Background: The undergraduate curriculum in the Faculty of Medicine at Dalhousie University is becoming increasingly digital. Examples include the largely paperless delivery of the program and the simultaneous distribution of the program to campuses that are 400 kilometers apart. In light of these developments, we're conducting a qualitative study to explore the question: How is technological renewal experienced by students, faculty and staff?

Summary of work: Our three-year ethnographic study explores the experiences of faculty, staff and students during a time of intense technological renewal. Our methods include: 1. textual analyses of documents and policies related to technologies; 2. observations of technologically-mediated events (lectures, small-group learning, committee meetings, etc.); and, 3. in-depth interviews and focus groups with faculty, staff and students.

Summary of results: We are learning that materials (tools, technologies, objects, etc.) and material conditions (availability of mobile devices, access to internet connections, barriers imposed by firewalls, etc.) have a significant influence on medical education.

Conclusions: An individual learner is enmeshed in a network of influential factors, both human and non-human. Optimizing digital medical education requires an understanding of this network of influences.

Take-home messages: While the importance of social learning in medical education has been acknowledged, material conditions have been largely ignored. Our research is demonstrating that both social (relationships) and material (technological) contexts have an influence on learning.

3FF/9
Understanding medical students' self-regulated learning in traditional classroom and online learning context: a mixed method study with cluster analysis

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Background: Not every student benefited from the self-regulated online learning context. It is crucial to investigate what latent traits of both students and learning contexts (traditional or online) make this difference.

Summary of work: 300 students in junior clerkship rotation experienced both complementary learning contexts of "traditional" and "online." Every student answered the self-regulated learning questionnaire and attendant rate of both learning contexts as well as three qualitative questions about why and how in which learning context the student feel competent with, preferred and actual performing better self-regulated learning. Cluster analysis according to attendance in both learning contexts divided the students into four clusters with both high, both low and high attendance in each context.

Summary of results: Exploratory factor analysis revealed consistent results within the two learning contexts with identical 4 pre-proposed factors. The overall alphas were 0.96 and 0.95, respectively. The repeated-measure ANOVA utilizing factor scores revealed a single significant effect on the interaction between clusters and learning contexts. Post hoc comparisons indicated the factor "goal-setting and time management" (GT) play a major role. Content analyses for the four clusters' qualitative responses revealed total 13 themes emerged from 47 pattern codes. The pattern differences of the qualitative responses support the quantitative results and also identified the role of students' motivation.

Conclusions: GT and motivation influence the self-regulation in different learning contexts.

Take-home messages: When learning motivation of students is extremely high or low, the learning context doesn't make a difference in self-regulated learning. However, when motivation is in between, perceived GT help students to identify the suitable learning context.

3FF/10
Thinking outside the classroom: social media and undergraduate medical education

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Background: Social media has the potential to be a powerful tool for learning and teaching. Modern technology has the ability to accomplish the goals of a social constructivist classroom and the internet provides such a forum for debate and dialogue, and the social construction of meaning. Boulos and Wheeler (2007) argue that Web 2.0 can 'promote active and engaged learning, where participants themselves construct their own knowledge through social interaction and exploration'

Summary of work: A structured online questionnaire was posted using Google Forms for 30 days between February and March 2013. Invitations to complete the survey were sent via e-mail, Twitter, Facebook and other online forums. Respondents were asked to answer sixteen questions on their use of social media platforms and attitudes towards social media. This is a report of the medical student responses.

Summary of results: 1090 respondents completed the survey of which 290 were medical students. 70% of medical students felt social media contributed to their learning at least weekly and 75% of students agreed that they found social media helpful in developing their clinical education. However, 65% of medical students did not agree with the statement that they learnt more from social media than lectures and 76% disagreed with the fact that social media had replaced the traditional methods of learning in medicine.

Conclusions: Social media promotes tacit knowledge transfer but there remains a role for traditional teaching methods.

Take-home messages: Medical schools and educators should embrace social media as a useful adjunct to deliver 21st Century medical education.

3FF/11
Student resistance to new technology

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Background: The content management system of the University of Western Sydney does not allow students to maintain a continuous record of their work from one year to another. Nor does it facilitate the provision of timely formative feedback as students work develops. Records of student learning are static finalised products to be uploaded for assessment, not dynamic documents which can be changed upon further reflection or in response to feedback provided by teachers and peers. At the School of Medicine we decided to introduce an electronic learning platform called Pebblepad to enable our first and second year medical students to develop a portfolio to record and reflect on their professional development across the 5 years of their undergraduate education.

Summary of work: Pebblepad is a fully web-based electronic portfolio which provides a private space for learners to plan, record and reflect on their activities, and an institutional space for learners to reveal their work to teachers for feedback. Students can store their reflections/work in Pebblepad across their undergraduate education and beyond, encouraging a view of learning as a continuous and lifelong process. We redesigned the curriculum and the assessment to promote reflective practice, and provided extensive technological support for both staff and students.

Summary of results: Technologically savvy students and technologically challenged teachers struggled to develop the skills required for Pebblepad. However, teachers embraced the pedagogical possibilities, whilst students remained unconvinced.

Conclusions: We underestimated student resistance to the adoption of new technology.

Take-home messages: Is student resistance a reluctance to engage in the reflective mode of learning which Pebblepad requires?

3FF/12
Motivation to use e-Learning resources is associated with greater learning achievements in medical students

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Background: The aim of this study was to investigate whether motivation to use an e-Learning resource (AccessMedicine) is associated with better educational achievements among medical students.

Summary of work: During the 2012 academic year, 76 fifth-year medical students in the clerk program of Internal Medicine in Chang Gung Memorial Hospital were recruited to this study. Levels of motivation to use e-Learning were classified as complete, partial or no motivation according to the use of nine AccessMedicine custom e-Learning modules. Assessment of learning achievements included the results of 1st stage medical license examinations, written multiple-choice questions (MCQ) and formative assessment for Internal Medicine.

Summary of results: Motivation to use e-Learning resources is significantly higher in students that pass the 1st stage medical license examination, compared to those that fail (84.2% vs. 68.4% respectively, p=0.010).

There was also a significant association between motivation and attendance at morning meetings (p=0.019). Success in the written MCQ and formative assessment was significantly higher among the 61 students that completed the AccessMedicine modules compared to the 8 students that only partly completed the modules and the 7 students that did not complete any (for the MCQ: 67.2±6.3% vs. 62.5±5.6% vs. 61.4±9.0% respectively; for the formative assessment: 92.0±2.2% vs. 89.6±1.9% vs. 85.9±3.0% respectively; p<0.05).

Conclusions: Students' motivation to use E-Learning resources has a positive association with their learning achievements. Formulating effective educational strategies to motivate students to use e-Learning resources may improve their achievements.

Take-home messages: Motivation to use e-Learning has a positive association with learning achievements of medical students.

3FF/13
A novel e-learning module: Ear and temporal bone 3D anatomy and surgical approaches

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Background: A good understanding of ear anatomy is important for medical students as it relates to the pathophysiology of otologic diseases. Likewise, a firm understanding of the anatomy and surgical approaches of the ear and temporal bone is essential to the training of otolaryngology residents. However, communicating the complex anatomy of these structures in traditional print medium has proved to be a challenge for medical educators and learners.

Medical trainees of all levels have increasingly sought to enhance their learning experiences by the use of interactive computer based anatomy models. Attempts to create computer-generated, interactive, 3D models of the ear and temporal bone have been made but the widespread adoption of these useful learning aids have been hampered by the single-user delivery and technology-compatibility issues.

Summary of work: This novel e-learning module is the result of collaboration between Western University and Stanford University. It is developed as an e-learning tool for medical students and otolaryngology residents. This module is uses a flashed-based platform specifically designed to be accessible online and compatible with all major browsers and tablet devices, thus overcoming the major limiting factors in delivery of material to learners.

The material presented is an amalgamation world-class learning resources: 3D models from the award-winning Temporal Bone Dissector, contents from authoritative reference textbook, and digitally-recorded surgical videos.

Summary of results: URL of the online module available upon request.

Take-home messages: This novel e-learning module is designed to overcome barriers to learning ear and temporal bone anatomy by delivering interactive world-class contents to medical trainees worldwide over the internet.

3FF/14
Wiki use for optimising scarce clinical resources!

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Background: Making the most of clinical attachments can provide poor feedback from medical students competing for the best clinical experience. Responding to feedback, and managing clinical resources (patient contact time) effectively is a role of the clinical educator. This is the report from the initial audit of student staff opinions towards the wiki in use.

Summary of work: Students and staff using the wiki were sent specific questionnaires and provided general feedback about the use of the wiki. 40 from 124 responses (32%) were collected. All of the responses were anonymous.

Summary of results: The students' opinions of the wiki had changed from it being a useful source of information where things were easy to find, to an overwhelming, possibly confusing addition to all of the other sources of information/instruction the students receive.

Conclusions: There are many aspects of the wiki which complement the current clinical course. Ability to see what is available in terms of clinical activity in their own, and other sub-specialties allowing students to become more self-directed, providing ownership of their learning opportunities. The results of this survey/audit and the year of experience using it, should allow a more involved feedback, and a second version of a wiki that is more fit for purpose.

Take-home messages: The organic evolution of the wiki over the course of the year has demonstrated that there must be some control over the content and organisation of the wiki in order that it doesn't become too wild and confused. Next year's should be an improved version, however, further audit will continue to provide areas for improvement.

3FF/15
Microbe Invader: Teaching microbiology through a computer role playing game

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Background: Microbiology education during pre-clinical years involves learning many facts relating to pathogens, diagnostic tests, and treatments. In absence of direct experience, students must learn by rote memorization. Computer games can offer a more engaging method to learn abstract material. I have created Microbe Invader, an interactive role-playing game to teach and review microbiology facts and concepts.

Summary of work: Microbe Invader places players in the role of a medical student seeing patients consulted by a fictional hospital's Infectious Diseases service. Students diagnose patients by ordering appropriate lab tests and matching history and symptoms to pathogens that fit the clinical picture. Next, students treat patients using appropriate medications considering potential side effects and mechanisms of antibiotic resistance. As students successfully diagnose and treat diseases, they receive virtual achievement badges. The game covers material for bacteria, fungi, viruses, and parasites at a level relevant to preclinical students. The game is publicly available online and includes a forum to share comments.

Summary of results: The game was received well by users, who were primarily medical students in pre-clinical years. Users praised the enjoyability of the game and the opportunity to apply their knowledge in a virtual setting. Users remained engaged, returning to the web site and attempting to complete achievement badges. Many users actively shared suggestions and corrections to the content of the game during development.

Conclusions: Many students found role-playing useful in learning and retaining microbiology facts. Virtual incentives and a narrative story also improved students' enjoyment and engagement.

Take-home messages: An interactive role playing simulation supplements pre-clinical students microbiology learning.

3GG ePosters: Curriculum Planning/Community Oriented Medical Education

Location: North Hall, PCC

3GG/1
What challenges will our current students face in 2025?

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Background: Lifelong learning is an individual's response to an ever-changing professional surrounding. As a systems response, medical schools should foster their students' development by anticipating future challenges when designing their curricula.

Summary of work: We interviewed 9 experts including doctors, students, nurses and patient representatives about their beliefs in important upcoming trends in medical practice and the health care system. Out of the transcribed interviews we synthesized 10 statements about anticipated future trends. We invited 8000 medical doctors from Germany spanning all medical disciplines and places of work to rate the likelihood of each statement on a scale from 0 (not likely at all) to 5 (very likely) in a two-step Delphi process. In a second round we asked participants of the first round to re-rate those statements with inconclusive results and comment on their rating.

Summary of results: 738 doctors responded to the first round and rated 4 statements as likely or very likely while 3 statements were rated as not likely at all or unlikely. 3 statements were rated inconclusive and therefore subject to a second round in which 315 of the initial 738 doctors participated. Trends likely to affect future medical practice include an increasing need to care for elderly patients including special communication trainings, an increasing use of remote monitoring and potentially treatment, increasing necessity for economic expertise in doctors and more procedures being carried out by non-medical personnel.

Conclusions: Using Delphi methods allows us to predict future challenges with increased accuracy compared to an individual's prediction. Whether our predictions hold is to be seen in the future.

Take-home messages: Educators should bear in mind that their students of today need to be fit to practice a long time and thus anticipate future challenges to their graduates.

3GG/2
Longitudinal service learning impacts students' attitudes toward primary care

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Background: The LCME requires service learning opportunities in medical school. The impact of longitudinal programs on student attitudes toward primary care is unclear. Our project measured the impact of an extracurricular service learning opportunity on attitudes toward primary care, self-efficacy working with the underserved, and career plans.

Summary of work: We created longitudinal partnerships for first or second year medical students with community based organizations. Students, surveyed pre- and post-voluntary participation in a 1-2 year service learning program, were compared to peer controls. Generalized linear models compared results between groups, controlling for initial measures.

Summary of results: Significant differences existed between intervention and control groups at baseline for attitudes, confidence in their choice to pursue primary care and interest in working with underserved populations, but not self-efficacy. Effect sizes were large. Over time, controlling for baseline, the study group significantly increased its confidence about pursuing a primary care career by .407 vs. the control group - .369 (ANCOVA p=.000) and its attitude toward working with underserved communities (.140) vs. the control group's - .108 (ANCOVA p=.043). No significant differences emerged with respect to attitudes toward primary care and self-efficacy.

Conclusions: Students who self-select into extracurricular service learning programs are different from other students. Participation in such programs may support students' intentions to pursue a career in primary care and to work with the underserved, while non-participants' intentions decrease.

Take-home messages: Participation in an extracurricular service learning program early in medical school may help stay the erosion away from primary care careers and care of the underserved.

3GG/3
Community-oriented medical curriculum with nurse-teachers supervisors

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Background: Medical Schools in Brazil are traditionally centered in hospital based schools and very specialized doctors. However, from the last 20 years, our National Health System focused attention in primary care and in a family based health program. In order to make general practitioner or family medicine specialty more attractive for medical students in Brazil, medical schools and the Brazilian Government are stimulating medical students' early exposure in the community based learning

Summary of work: Our medical school has a problem-based curriculum. Students spend four hours a week in the primary care base, since the first week of the course, lasting the first four years, in a group of 8 students. They are coordinated by a nurse supervisor, in the first two years, and with medical doctors in the next 2 years.

Summary of results: Students learn the theory about the functioning of the Brazilian Heath System and perform systematic interventions in health promotion and primary care. They act in many different activities for the well-being of the population at large, such as attention to health in primary schools, diabetes and infection diseases prevention, hygiene care and others.

Conclusions: The early exposure of the medical student to primary care stimulates them to participate and understand the health policy and the importance of family medicine in daily life. The nurse supervisor is a strategy to improve these activities as they are a key point in primary care policy.

Take-home messages: Early exposure of the students to primary care stimulates a better understanding of its importance.

3GG/4
Student clinical learning in under-served, GP community areas

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Background: The recruitment and retention of doctors in under-served areas across the world is a persistent issue in healthcare. An increasingly popular rectifying approach has been to deliver undergraduate clinical education in such areas. However, a collective understanding of these initiatives is lacking.

Summary of work: A systematic literature review was conducted to identify the strengths and weaknesses for medical students and supervisors of community placements in under-served areas. Search terms used were combinations and variations of four concepts exploring GP primary care, medical students, placements, and location characteristics.

Summary of results: Fifty-four articles were included in the final review. Four main categories were identified: student performance, student perceptions, career pathways, and supervisor experiences. Internationally, under-served area placements have produced beneficial consequences for students, supervisors, and the community. The placements have stimulated student learning through continuity of learning, provided a holistic appreciation of medicine, and increased the likelihood of students returning to the area. Students' exam scores did not significantly differ after undertaking a placement, however; performance equivalency is a pragmatic objective that may detract focus from the development of the student professional identity.

Conclusions: This review reflects the emergent qualitative data, as well as quantitative data used to assess initiatives. The educational value of placements is demonstrated mainly in rural areas as opposed to urban, deprived areas.

Take-home messages: A Durham University pilot programme will allow students to experience the complex issues of primary healthcare in under-served, deprived areas.

3GG/5
Assessing the experience of Child and Family Nurse community paediatric placements for medical students

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Alison Jones (University of Wollongong, Graduate School of Medicine, Wollongong, Australia)

Background: The Graduate School of Medicine, University of Wollongong has its focus on training medical practitioners for regional and rural practice. During the 3rd of the 4 year program, students have longitudinal placements in a GP practice but with variable exposure to paediatric learning.

Summary of work: In order to enhance their learning of paediatrics in the community setting, 11 students in Phase 3 were placed with Child and Family Nurses. They were involved in clinics and home visits; participating in child health, growth and developmental surveillance. Developing an understanding of common presentations, developmental screening tools, local health referral pathways and services was a secondary outcome. The students were assessed pre and post program and compared to a control group. A focus group was also conducted to obtain qualitative information about the students' experiences.

Summary of results: Participating students scored significantly better than controls but sample size was small. The students found the placements very useful as they were provided with opportunities to practice speaking to families and examining babies and young children. They were also more aware of available community services for children and their families.

Placements in other community settings were also thought to be desirable.

Conclusions: Overall, the students felt that the placements were a good way to further enhance knowledge and skills in community paediatrics. A suggestion to condense the placements into week long intensives may increase the intensity, scope and variety of the learning experience.

Take-home messages: Placements with Child and Family nurses is effective in developing knowledge and skills in community paediatrics.

3GG/6
The importance of the health community agent in community-based learning at a large urban area: the experience of Unifenas Medical School, Belo Horizonte, Brazil

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Background: Despite being recommended in national guidelines, integration between university and community aimed at fostering learning of primary care is difficult to implement, particularly in large urban areas. At Unifenas Medical School, community-based activities begin in the first year and the health community agent (HCA), a member of the family health care team, acts as a link between the school and the community.

Summary of work: To assess the first year community-based learning at Unifenas Medical School, Belo Horizonte, using biannual evaluation forms.

Summary of results: In the first year, the students are involved in 4-hour weekly supervised visits and workshops. They are attached to HCA that provide support to activities such as identification of social resources and health determinants, home visits, and organization of health promotion groups. The students have evaluated the activities in a positive way, highlighting their good interaction with the HCA and the great opportunity to see how the principles of primary care and the tools of family medicine are used in practice. The HCA have been satisfied with the activities and report feeling valued and supported in their routine activities.

Conclusions: Community-based learning with the participation of the HCA is rewarding for both students and HCA allowing teaching to occur deep inside the community, expanding the students' comprehension of the illness process and avoiding crowding of the health care units.

Take-home messages: When conducting community-based activities we should think outside the traditional clinical setting and use professionals that are key to strengthening the link between the university and the community.

3GG/7
The education of health workers in community-based rehabilitation: methodologies and technologies of community intervention directed to people with disabilities

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Background: This study's objective was to analyze the inclusion of people with disabilities in society and family and to identify their health needs in order to implement teaching-learning actions. It was conducted in Brazil through the University of São Paulo, with funding provided by FAPESP during 2011 and 2012.

Summary of work: This is a qualitative study with a methodological approach using the following data collection techniques: life histories and systematic observation. The study's subjects were individuals with congenital or acquired disabilities living in the coverage area of a Family Health Unit in the city of Ribeirão Preto, SP, Brazil.

Summary of results: The results indicate that the individuals are restricted to their homes and are socially isolated; there is social exclusion; physical, geographical and psychosocial barriers in the area; social vulnerability with a lack of economic and human resources for the family to provide care; and a generalized lack of information about the problem involving the condition and care provided to disabled people. Health needs include: psychosocial care; access to Primary Health Care (PHC) services; and rehabilitation, involving the need to create home care programs, develop community-based actions and interventions within the area; provide assistive technology, equipment; instruct/guide families concerning disability and care; promote prevention and early diagnosis; encourage greater cooperation among health teams; and establish coping strategies.

Conclusions: There is a need to create teaching methodologies directed to health workers to enable the use of technologies to be used in communities and community-based rehabilitation together with PHC facilities in order to meet the aforementioned needs.

Take-home messages: here is a need for a social approach about disability, because there are many social determinants of health indices in people with disability. Therefore, it is necessary to create teaching-learning methodologies that enable students in the field of health for community-based rehabilitation.

3GG/8

Cumulative disciplinary score in an integrated pre-clinical curriculum: a novel solution for an old problem

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Background: In an integrated curriculum, in which discipline-based tests have been replaced with multi-disciplinary examinations, serious challenges may arise when students deliberately leave out the content of those disciplines that have smaller weight in each block exam. While reporting disciplinary scores goes against the grain of integration, by calculating an overall score, some of the students possibly will not study some disciplines. We describe the experience of Tehran University of Medical Sciences, where an organ-based integrated curriculum has been launched since September 2011.
Summary of work: In the first academic year, students passed 4 blocks: Introductory, Respiratory, Cardiovascular, and Musculoskeletal. Each block included anatomy, histology, physiology, and embryology. To perform integrated assessment, questions from different disciplines were presented in single booklet while 10% of questions were truly interdisciplinary. Instead of recording each discipline's score separately, the overall block score was reported. Furthermore, cumulative disciplinary score was calculated at the end of the year.
Summary of results: In the end of the year, 54 medical students out of 159 did not achieve the required cumulative disciplinary score. In physiology, anatomy, histology, and embryology the number of failed students were 4, 8, 11, and 24, respectively. They were referred to take a disciplinary examination.
Conclusions: Comparing number of students who failed disciplines with low credits (e.g. histology) versus number of failed students in disciplines with high credits (e.g. physiology) suggests that the later ones had systematically been ignored by some students. The calculation of a cumulative disciplinary score reduces concern due to this problem in the integrated assessment.

3GG/9

Educational Quality can be Improved when Competence-Based Learning is Applied In the Medical Career

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Background: Teaching encyclopedic results in fragile knowledge and is being abandoned by the Medical Careers. It was decided to evaluate the curriculum based on professional competencies. Argentine ME Resolution 1314/07
Summary of work: A prospective investigation (2009-2013) of assessment of competence in Medicine: Each learning competency was constructed from 1st year. 70 professional skills in Medicine were studied in prospective investigation, as the way they were learned in the course of the career, especially the last three years pondering of 1 to 5 (level 1 minimum and level 5 maximum). Students (n=281), graduates (n=53), professors (n=25) and authorities (n=8). Statistical analysis 2012: For the quantitative analysis of the variables, the normality test was applied. SPSS software version 17 was utilized for all the tests.
Summary of results: 1) Students: In 4th year, the learned skills were between level 3 and 4. In 5th year, they were between 4 and 5. In 6th year, almost all students reached the 5th level. 2) Graduates: 45 were applied correctly: level 4 and 5 (84%). 3) Head and assistant professors: n=25. Since 2006, professors have progressively incorporated and applied this pedagogical paradigm in a coordinated and harmonic manner in almost all curriculum subjects: 95% in 2013. Authorities: n= 5. The authority's feedback- in qualitative terms- was consistent with that of the professors.
Conclusions: Any student who adopts a learning approach built on professional skills and competencies, a learning task facing towards meaning and understanding, will be developing not only technical skills (know) but also and perhaps more importantly, will develop methodological skills (knowing do), participatory (knowing how to) and personal (how to be).
Take-home messages: Educational quality can be improved when competence-based learning is applied in undergraduates in the medical career.

3GG/10

Developing a curriculum in disability to help pre-clinical medical students explore world views

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Background: Medical education traditionally explores the scientific rather than the social aspects of disability, emphasizing a bias toward normative or curative intent in medicine and further alienating the disability community. A unique pre-clinical curriculum was developed with a focus on the exploration of worldviews, with the purpose of increasing awareness of social aspects of disability and empathy for individuals with disabilities.

Summary of work: Seven hours of curricular time was devoted to exploration of the human experience of disability through interaction with community members. Following this, an ethical discussion contrasted an educational brochure on prenatal genetic testing produced by a medical institution with that of a disability organization. To allow open expression of opinion, electronic reflections were completed and anonymously distributed back to the class. Subsequently, a class discussion ensued regarding the breadth of worldviews and navigating differences that present among patients and colleagues.

Summary of results: Forty-seven percent of entering medical students had no personal experience with individuals with disabilities. Students found it helpful to hear the personal perspectives of people with disabilities. Following the review of other students' electronic responses, first year medical students were able to openly discuss how to respectfully and professionally handle opinions that varied from their own.

Conclusions: Pre-clinical medical students commonly lack personal experience with disability. Exposure to the human-experience of disability helps promote empathy and self-exploration of worldview.

Take-home messages: Professional development involves self-exploration and empathy. Curriculum to help students understand disability and differing worldviews in society and among colleagues can be easily integrated into curricula and is well-received by students.

3GG/11

Evaluation of physiology teaching in a traditional curriculum in Hungary

Levente Kiss (Semmelweis University, Institute of Human Physiology and Clinical Experimental Research, 37-47 Tuzolto uca, Budapest 1094, Hungary)
Tamás Ivanics (Semmelweis University, Institute of Human Physiology and Clinical Experimental Research, Budapest, Hungary)

Background: Physiology teaching in a traditional setting corresponds to a step by step, topic based approach to the material in order to provide the necessary knowledge for the students to apprehend the basics of clinical studies.

Summary of work: Our physiology curriculum comprises regular, weekly series of lectures, lecture consultations and lab activities. Lectures are held for the whole class of 200- 250 people while consultations are conducted for smaller, combined groups of 40-50 students. The lecture material may also be discussed in small groups of approx. 15 students with a dedicated tutor during the lab time when typically various measurements (blood pressure, heart sounds, blood glucose) are taking place. The curriculum is evaluated in detail by the students at the end of each semester using Evasys feedback forms on scales from 1 (worst) to 5 (best) and thoroughly analyzed.

Summary of results: Our traditional teaching method received good scores from the Hungarian and English speaking classes receiving an average value of 4.38 and 3.93 for the lectures, 4.41 and 4.23 for the consultations and 4.54 and 4.55 for the lab practices, respectively. The evaluation also provided scores for every lecturer and tutor and for every lab practice which helped in faculty development.

Conclusions: Students have found our traditional setting of physiology course to be good and useful while also indicated various possible improvements in the curriculum.

Take-home messages: The described traditional physiology curriculum emphasizes the build-up of a firm, structured background exploiting the advantage of a repetition based approach while also facilitates a personal student-tutor relationship.

SESSION 4: Simultaneous Sessions
Monday 26 August: 1400-1530

4A Symposium: How Can Evidence Inform Teaching?
Location: Congress Hall, PCC

Marilyn Hammick (BEME Consultant, UK) (Chair)
Jill Thistlethwaite (University of Queensland, Australia)
Geoff Norman (McMaster University, Canada)
Geoff Wong (UK)
Antonio vaz Carneiro (Portugal)

This symposium follows on from the well-received 'What is evidence?' presentation and discussion at AMEE 2011. It will provide a discussion forum on the role of evidence in health professional education. Presenters will briefly outline from different perspectives the challenges associated with evidence-informed decision-making related to health professional education. A facilitated interactive session with the audience will seek to understand how educational research (primary and secondary) is received by practitioners, how to synthesise and disseminate existing evidence, and the issues associated with the translation of evidence into practice to implement new, or enhance existing, educational initiatives.

4B Symposium: Technology Enhanced Learning in Regional Networks Focused on Medical Education
Location: Meeting Hall I, PCC

Daniel Schwarz (Masaryk University, Faculty of Medicine, Institute of Biostatistics and Analyses, Czech Republic)
Ladislav Dušek (MEFANET Coordinating Council President, Czech Republic)
Radu Iliescu (University of Medicine and Pharmacy "Gr. T. Popa", Romania)
Oto Osina (Comenius University, Jessenius Faculty of Medicine, Slovakia)

The main goal of the symposium will be an exchange of experience and know-how gained while building and operating a wide range of institutional networks providing the education for physicians and other healthcare professionals. The networks are very often focused on academic medical education. Interesting experience is, however, also expected from professionally oriented groups which implement their educational process in the form of case-based training and electronic remote consilium. A participant of this session can benefit from the presented experience for initiating or upgrading similar network in his/her own region. Furthermore, the participant can also become

more familiar with the tools for technology enhanced learning applied in particular networks and may use selected from them for his/her teaching practice.

4C Symposium: New Trends in Health Sciences Education
Location: Panorama, PCC

Raymond Pavlick (AT Still University School of Osteopathic Medicine in Arizona, Mesa, USA)
Peter de Jong (Leiden University Medical Center, Leiden, Netherlands)
Amy Wilson-Delfosse (Case Western Reserve University School of Medicine, Cleveland, USA)
Aviad Haramati (Georgetown University School of Medicine, Washington DC, USA) (Moderator)

A principal goal of all health professions education is for students to gain a deep understanding of the scientific method, but also to develop the skills and attitudes to apply new knowledge to improve the care of their patients. In recent years, new educational and technological developments have provided opportunities to improve and update science education to a modern and challenging training environment. In this symposium three such trends will be addressed: programs using the flipped classroom approach, advancements in computer technology and innovative case based teaching strategies. The presentations will be followed by a question and answer period and a general discussion.

4D   PhD Reports 1
Location: Meeting Hall IV, PCC

4D/1
The Role of Clinical Documentation and Case Review in Shaping Medical Teaching Teams' Ability to Collaborate in their Provision of Patient Care

Mark Goldszmidt (Schulich School of Medicine & Dentistry, Centre for Education Research & Innovation, University of Western Ontario, Room 115, Health Sciences Addition, London, Ontario N6A 5C1, Canada)
Tim Dornan (Maastricht University, School of Health Education, Maastricht, Netherlands)
Jeroen Merrienboer (Maastricht University, School of Health Education, Maastricht, Netherlands)
Georges Bordages (University of Illinois at Chicago, Department of Medical Education, Chicago, United States)
Lorelei Lingard (Schulich School of Medicine & Dentistry, Centre for Education Research & Innovation, London, Canada)

Introduction: The research question was: How does the IMTT genre system influence the team's ability to collectively care for patients? From this emerged two other questions: 1) how do juniors (medical students and first year residents) use the genre system in providing follow-up care? and 2) How does team members' perceived purpose of case review shape the genre?
Methods: Study 1 used multiple case study methodology, with observation and audio-recording of 19 patient cases consisting of admitting case review discussions and chart documents.   Participants included 14 medical students, 32 residents, and 10 attending physicians.   A constant comparative analytic approach was used to explore patterns that recurred across cases. Study 2 and 3 used constructivist grounded theory methodology and analytic procedures. Study 2 involved observation and field interviews with juniors while they performed patient follow-up. Study 3 involved interviews and focus groups with 24 attending physicians and 20 senior residents.
Results: The IMTT genre system facilitated collective care of patients by enabling a phenomenon we called "progressive collaborative refinement" (PCR). PCR refers to the goal, achieved through case and new data review, of collaboratively and progressively refining ideas around the patient's problems and strategies for addressing them. PCR was often threatened by particular features of the genre system: 1) The junior's admission note served as the main document representing the team's thinking; 2) The case review was a verbal genre that did not include a formal verification or modification feature to ensure adequate 'uptake' of evolving concepts by these junior documenters; 3) The genre system lacked a separate, stable, space for maintaining and refining problems and plans; 4) The predominant 'intertextual' reference for each note was the preceding note. Observations of junior trainees' provision of follow-up care and faculty and resident interviews confirmed and elaborated our understanding of the PCR phenomenon and the affordances and threats to PCR in the IMTT genre system.
Discussion and Conclusion: Patient care on IMTTs is powerfully shaped by its genre system, which both enables the critical phenomenon of progressive collaborative refinement and threatens it. Identifying the gaps in this genre system offers a foundation for improving both the communication practices themselves and the training we provide novices in using them effectively.
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4D/2
Unveiling group processes when students collaborate in small groups: An attempt to increase effectiveness of group learning in higher education

Juliette Hommes (Maastricht University, Faculty of Health Medicine and Life sciences, Educational Research & Development, Postbox 161, Maastricht 6200MD, Netherlands)

Introduction: This PhD thesis focuses on three gaps in the conceptual framework of group learning: the importance of students' learning in the informal context, the influence of time on learning processes in groups and an exploration how students learn and interact across groups. Finally, the authors show how a change in class size enhances group learning.
Methods: All research took place in an undergraduate medical curriculum at Maastricht University applying Problem-Based Learning in its programme. Multiple methods were applied, using (longitudinal) social network analysis, mixed methods designs combining repeated measures of the Team Learning and Behaviour Questionnaire (3) and semi-structured individual interviews. A stratified controlled trial divided students of a large class (n=320) into two small subsets (n=50) and one large subset of the remaining students (n=220). Formal and informal learning processes of these students were studied over 22 months.
Results: The first study shows that learning in the informal context is a rather important predictor of student learning. The second study elaborates on how groups develop over time, showing development in group learning behaviour, psychological safety, social

cohesion and group potency in each group students were involved in over time. Moreover, interdependence, task cohesion and transactive memory were additional group processes which students valued as important. Convergence of mental models was related to the development of most of the previously mentioned group processes. The third study explored how students learned in the informal context over time, revealing that students developed a personal learning network, unrelated to the formal group they were assigned to by the university. Finally the stratified controlled trial shows that students perceive more positive group learning processes in the formally designed groups. Moreover, this intervention had another long-term effect on group learning: informal learning networks of the students were arranged within the subsets of the class.

Discussion and Conclusion: Groups are complex social systems, dynamic over time. Groups develop within modules, but there is room for improvement to increase effectiveness of learning in groups. Complexity of group learning is clearly illustrated as students learn in the informal context crossing the borders of the formal groups students are involved in, developing a personal network in which learning takes place. The stratified controlled trial furthermore indicates that a simple change of design can facilitate learning in large classes when they seem small.

References: 1. H. Arrow, J. Cook, in Work group learning: understanding, improving & assessing how groups learn in organizations, V. I. Sessa, M. London, Eds. (Lawrence Erlbaum Associates, Taylor & Francis Group, London, 2008), pp. 45-71.
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4D/3
Evaluation and Feedback for Effective Clinical Teaching

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Introduction: The research questions were: 1. What are characteristics of good clinical teaching in the clinical workplace and to what extent do existing instruments measure these characteristics? 2. How can we provide feedback effectively? 3. What factors influence the quality of clinical teaching as perceived by residents?
Methods: 1. A systematic literature review for describing existing instruments and characteristics of clinical teaching in the workplace. 2. A Delphi study for developing an instrument EFFECT (Evaluation and Feedback for Effective Clinical Teaching), confirmative

factor analyses (CFA) and reliability analyses. 3. Focus group research for evaluating the EFFECT feedback procedure (EFFECT-S). 4. Analyses of data of a longitudinal and a multicenter study by comparing means, t-tests, and multiple regression analyses.
Results: None of the existing instruments covered all important aspects of clinical teaching in the workplace; numerous instruments lack a clear theoretical framework and/or lack sufficient validity evidence (3). CFA and reliability analyses of EFFECT yielded an eleven-factor model with a good to excellent fit and good internal consistencies (4). EFFECT-S, including face to face meetings between the clinical teacher and two residents was highly appreciated. A safe evaluation environment and honest feedback were important conditions. Anonymous rating creates a safe evaluation environment for residents, but it impairs safety for supervisors. Some of the clinical teachers showed improvement on the EFFECT scores after one year. Female clinical teachers, clinical supervisors performing assessments, and teachers in affiliated hospitals were rated significantly higher. Residents in their first years of training were more positive about their supervisors. Gender of the residents did not affect the scores, except for the item that specifically asked for the role modeling function.

Discussion and Conclusion: The model of workplace learning is a useful framework for developing an instrument for evaluating clinical teachers. The dialogue between residents and their supervisor stimulates the co-creation of shared knowledge on what the profession is about, a shared understanding of learning in practice and how to optimise this workplace learning in their communities of practice (5). The quality of teaching is not only dependent on individual differences between teachers (gender), but also on environmental factors and characteristics of the resident.

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4D/4
Peer Feedback to Enhance Learning?

Rachelle Kamp (Maastricht University, Educational Research & Development, P.O.Box 616, 6200 MD, Maastricht 6229 ER, Netherlands)

Introduction: This thesis will address the following research questions:
Are students able to evaluate the cognitive, social, and motivational contributions to the tutorial group of their peers and do these contributions predict student achievement?
Under which conditions can a peer rating scale that evaluates students' achievement-related contributions to the tutorial group be used as a PF intervention in order to enhance the quality of these contributions and student achievement?

Methods: A peer rating scale (M-PARS) was developed by selecting cognitive, social, and motivational items. 196 students were evaluated by their peers on these items. Reliability and validity was investigated with a confirmatory factor analysis. Next, 538 students were evaluated with the M-PARS and individual ratings were related to student achievement using structural equation modeling. Students' attitudes towards the effectiveness of PF generated by the M-PARS were investigated with a focus group. In a pre-test (M-PARS), intervention (receiving PF), post-test design (M-PARS and student achievement), PF was combined with reflection and goal setting. Participants were divided into group 1 (PF+individual reflection and goal setting), group 2 (PF+collaborative reflection and goal setting), or group 3 (no PF).

Results: This resulted in a 14 item peer rating scale, with three subscales (cognitive, social, and motivational contributions). Furthermore, a relationship between individual contributions and achievement was found. PF on these contributions, combined with reflection and goal setting, had a positive effect on achievement, but not on the quality of contributions. However, no differences were found between individual vs. collaborative reflection and goal setting. In the focus group, students indicated that the PF increased their awareness of 'appropriate tutorial behavior'.

Discussion and Conclusion: These results indicated that students are able to evaluate their peers' cognitive, social, and motivational contributions to the group, which are related to individual achievement. PF on these contributions can be used to enhance awareness and achievement, but only if the students are stimulated to reflect upon the received PF and formulate goals for improvement. Although this thesis indicated the importance of PF in PBL groups, the question remains how reflection and goal setting can be facilitated optimally.

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4E Research Papers: Simulation and Learning Technologies
Location: Meeting Hall V, PCC

4E/1
Effective debriefing approaches in simulation based education

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Margaret Bearman (Monash University, HealthPEER, Melbourne, Australia)
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Introduction: Debriefing facilitates participants' learning from the simulated experiences through reflection and feedback. The value of debriefing post scenario in simulation-based education (SBE) has been well documented. For example, a review by McGaghie et al (2010) identifies feedback (including debriefing) as the most important feature of SBE (McGaghie et al. 2010). There are many different models and approaches to facilitate debriefing in SBE within healthcare, building on research, experiences and practical application. However, there is little evidence supporting one approach over another. It is likely that several variables are important such as what is taught, the level of learners, their experience and not least the educator (Steinwachs 1992; B. S. Issenberg & Scalese 2007). Though the literature describes what constitutes effective debriefing, there are discrepancies as to what is actually being practiced (Dieckmann et al. 2009). There is limited information as to how experts or experienced debriefers practice (Dieckmann et al. 2009). This national study explores the practice of expert debriefers, who work within full-scale high-stakes immersive SBE environments.
Methods: Individual semi structured interviews were conducted with experts in debriefing after immersive simulation based education. Respondents were nominated by peers through purposive sampling across Australian states. Interviews were audio recorded and transcribed for thematic analysis. Three researchers working independently each coded 3 transcripts and jointly developed a high level coding framework, used to guide interpretive thematic analysis. Triangulation through independent analysis continued throughout the thematic analysis process.
Results: A total of 24 interviews of 45-95 minutes were transcribed. Participants were from all states of Australia, with 20 different workplaces and centres, 6 different disciplines and 14 sub-disciplines. The participants had between 4 and 23 years of experience with debriefing in SBE, with an average of 9.7 years of experience.
The three high order categories are: features of expert practice; the development of expertise; and the influence of context upon debriefing practice. Analysis is indicating that dominant practice features include: debriefing models used; video assisted debriefing; briefing; and continued professional development. Most participants used a blended approach to debriefing combining different models to fit the need of the learners. Key success factors identified by several participants were: the importance of showing genuine interest, being honest and continuing to strive for being better by continues professional development. Influences on debriefing practice included a range of peer interactions such as: peer feedback, observation of other debriefers, formalised courses in debriefing and conference workshop participation.
Discussion and Conclusion: This study looks at the self-reported practices of expert debriefers. The purposive sampling covered a large range of disciplines and no new themes (saturation) were introduced within the final interview set. While there were many convergent features of expert practice and development; there were also context-dependent divergences. The need for peer interaction to develop and sustain expertise was marked. Interviewed expert debriefers do not use a single model for practice but have a blended approaches to debriefing with genuine interest and honesty as the main drivers.
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4E/2
Considerations in learner-centered versus team-based collaborative online learning

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Introduction: Little is known about how online collaborative learning occurs in healthcare education (1-3). This exploratory, descriptive study examined the

perceived differences between individual and collaborative group online learning.

Methods: Fifteen interdisciplinary healthcare professionals participated in a 12 week, blended online course consisting of online background information and a facilitated "case building" exercise (4) (modified "build-a-case method") (5) where learners were randomized into 2 groups. Group 1 (group learners, n=10) created their patient together synchronously using audio streaming/headsets and synchronous chat, Group 2 (individual learners, n=5) built their case independently online using the same software. Qualitative focus groups were held post intervention and at 4 month follow up and were triangulated with reflection pieces and online sessions.

Results: Three themes emerged: Motivation and Stimulus to Learn, Collaboration, and Resources (time and technology). Group learners commented on peer pressure as a stimulus to learn and appreciated the rich feedback and fidelity to real life teamwork they experienced. They also seemed more apt to consider multiple psychosocial/barriers and how interrelated learners' interprofessional roles were when creating their case. They commented on developing a skill set in collaborative communication as well as knowledge acquisition during the course. However, there were "competing interests" about what individuals wanted to learn in a group setting. Individual learners liked the flexibility and control (of time and objectives), but found the breadth of information online overwhelming without immediate feedback. Although both groups reported equal time spent in the course, it was felt that group learning took more time. Working together online multiplied the time required to learn new software and collaborate in a novel way. The online synchronous method added 2 challenges for group learners: lack of visual communication, and time for technology integration.

Discussion: Individual online learning may provide flexible, individualized learning particularly suited for simple knowledge acquisition type of learning. However consideration should be given to provide focus/immediate feedback for the learner and consider motivation/ stimulus to learn given self-directed nature of this type of learning.

Collaborative/group online learning may allow for more exposure of individual unperceived learning needs and comprehension of complex multifaceted information that may require multiple perspectives and opinions to comprehend. It may seem more "true to application to practice" due to its interprofessional nature and allow the development of collaboration as a skill set. However, collaborative learning takes time and resources (facilitation and tech support), and can be overwhelming especially at beginning of a learning encounter, and therefore may not be appropriate for short interactions or simple information acquisition.

Conclusion: This exploratory study describes areas for consideration, when matching learning objectives to online collaborative and individual learning methods.

(This presentation was also previously given at the Canadian Conference on Medical Education, 2012 and the CME Congress 2012.)

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4E/3

Cognitive Appraisal as a Predictor of Stress, Patient Management, and Team Performance during Simulated Patient Crises

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Daniel Haas (University of Toronto, Faculty of Dentistry, Discipline of Dental Anaesthesia, Toronto, Canada)
Vicki LeBlanc (University of Toronto, The Wilson Centre, Toronto, Canada)

Introduction: Patient crises require healthcare teams to process high volumes of information, make appropriate decisions, and carry out multiple procedures under time constraints (1). These acute circumstances can evoke stress responses, which are known to impair attention, memory and decision making abilities (2). This has implications for patient safety. Proposed explanations for variations in individual responses to stress can be guided by the theory of Cognitive Appraisal (3). According to this theory, situations where perceived resources fail to meet perceived demands produce an imbalance which results in an appraisal of threat rather than challenge. Perceptions of threat have been associated with increased subjective and physiological stress (3-4), but have not been described in relation to team performance. The objective of this study was to describe the relationship between cognitive appraisals, stress responses and performance in the context of teams managing simulated medical emergencies.

Methods: 22 teams of one general practice dentist and one assistant participated in four different simulated medical emergency scenarios of equal difficulty. Participants completed demographics and a knowledge

pre-test. Scenarios were video recorded and independently scored by four trained raters: patient management was assessed by checklists (Ck) previously developed through a Delphi method and a global rating scale (pGRS); teamwork was assessed using the Global Assessment of Obstetric Team Performance modified to the dental context (GATP) and a global rating scale (tGRS). Pre and post-scenario stress was measured by cognitive appraisal (ratio of perceived demands to resources; ≤1 = challenge appraisal; >1 = threat appraisal), self-reported anxiety (STAI-Y1) and salivary cortisol. Relationships between cognitive appraisal, stress and performance, knowledge and demographics were evaluated using stepwise logistic regression. Results: Dentists (D) and assistants (A) demonstrated a wide range of years of practice experience (D, M=19.2, R3.5-4.2; A, M=9.5, R=.5-25) and knowledge scores (D, M=78%, R55-100%; A, M=53%, R2-90%). Mean scores for threat, anxiety, and cortisol were above population norms for all scenarios. All checklists and scales demonstrated good inter-rater reliability (ICC Ck=0.85; pGRS=0.76; GATP=0.759; tGRS=0.79). Cognitive appraisal emerged as a consistent predictor of both stress response and performance: threat was associated with higher stress response (cortisol r=.30, p=.00; anxiety r=.50, p=.01) but lower performance (Ck, r=-.23, p=.03; pGRS, r=-.22, p=.04; GATP, r=-.24, p=.03; tGRS, r=-.25, p=.02). Knowledge and clinical experience were not consistent predictors of stress response or performance. **Discussion and Conclusion:** Healthcare providers can make mistakes during crisis events that can compromise patient safety. Patient crises can lead to subjective and physiologic stress responses that interfere with performance. Our pattern of findings suggests that cognitive appraisals of threat by team members are related to increased stress and degreased performance. Health professionals may benefit from simulated training experiences which address cognitive appraisal to reduce stress and enhance performance during medical emergencies.

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4E/4
The Impact of Massed versus Spaced Instruction on Learning and Self-efficacy in Pediatric Resuscitation

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Ilana Bank (McGill University, Pediatrics, Centre for Medical Education& Steinberg Medical Simulation Centre, Montreal, Canada)
Farhan Bhanji (McGill University, Pediatrics, Centre for Medical Education & Steinberg Medical Simulation Centre, Montreal, Canada)

Introduction: Resuscitation skills are life-saving interventions provided by healthcare providers (HCP) in which survival is related to the quality of resuscitation (1). Unfortunately HCPs completing resuscitation courses demonstrate limited retention of skills in the weeks to months following training (2). HCP self-efficacy in resuscitation correlates with performance of critical skills and predicts application of life-saving skills in the simulation environment (3). Our study explored the impact of spaced instruction, compared to the usual massed instruction, on learner performance of pediatric resuscitation skills and self-efficacy in resuscitation. Methods: We delivered a previously published (4) resuscitation course to medical students in either a spaced (4 sessions of 75 minutes each, spaced over 4 weeks) or massed (one five-hour session) format. Four weeks following course completion trained, blinded observers used expert-developed checklists to evaluate student performance on 3 skills (bag valve mask ventilation (BVMV), intra-osseous insertion (IOI) and chest compressions (CC)). From the total of 32 checklist elements, 10 were deemed key. Self-efficacy was measured pre-, post- and 4 weeks post-course using a validated visual analogue scale (VAS).
Results: Forty-five out of 48 students completed the study protocol. Students in both groups had similar overall checklist scores for IOI and CC, however students in the spaced group performed significantly better on BVMV ((6.9±1.4 points/10) vs. (5.8±1.9 points/10)(p=0.04)). Students in the intervention group performed key elements more frequently than those in the massed group for 4 of the 10 key elements (administering oxygen (OR 47.2, 95% CI 5.2-423, p<0.001), adhering to the target ventilation rate (OR 4.9, 95% CI 1.1-21 p<0.03), appropriate landmarking for IOI (OR 5.4, 95% CI 1.3-24.3, p<0.02), and using a stool when necessary for performing chest compressions (OR 8.3, 95%CI 1.2-59, p<0.03). Additionally students in the spaced group were faster at completing the potentially life-saving skill of IOI (30.2±34 seconds) vs. (62.1±30

seconds) (p=0.002). Both cohorts improved their self-efficacy in pediatric resuscitation from pre to post course, however only students in the massed group had decay in their self-efficacy 4 weeks following course completion: mean VAS score post course (70.9±12mm) vs. mean VAS score 4 weeks post-course (54.9±18mm)(p=0.002).

Discussion and Conclusion: Previous research suggests that spacing educational encounters over time results in improved learning but the literature is inconsistent, focuses on simple rather than complex tasks and reports immediate rather than long-term retention of skills (5). As well, little is known on the effect of spacing on learner self-efficacy, an important predictor of performance in critical life-threatening events. In our study, students taught pediatric resuscitation in a spaced format had improved skill performance on key steps one-month post-course completion and were more efficient to complete tasks. They also did not demonstrate decay in their self-efficacy while students in the control group did. Procedures learned in a spaced format may result in better retention of skills as compared to traditional massed training. Students' self-efficacy ratings suggest that learners taught in a massed format are less confident in their abilities when they might have to perform pediatric resuscitation.

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4F Short Communications: Assessment: Written

Location: Chamber Hall, PCC

4F/1
Estimating insight and foresight from summative assessment

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Background: When insight and foresight are lacking overconfidence and error can occur. Our pilot demonstrated how MCQs can be used to estimate insight, as determined by certainty in responses, and foresight, as determined by the safety of incorrect responses. This investigation extends this to summative assessment.
Summary of work: Fifth year medical students selected MCQ responses with certainty: low, moderate, high. Incorrect responses were classified: not, low, moderate, high unsafe. Analysis included response certainty and safety and student ability.
Summary of results: During 2011-2012, 15 students scored low(<8/20 correct), 64 substandard(8-11/20), 70 above standard(12-15/20), and 9 excellent(>15/20). A degree of insight and foresight were demonstrated. The proportion of responses: correct increased from a mean of 0.38 for low to 0.80 for high certainty(p<0.001); incorrect and not unsafe decreased from 0.28 for low to 0.07 for high certainty(p<0.001); incorrect and unsafe decreased from 0.27 for low to 0.10 for high certainty(p<0.001). A similar pattern was seen for ability groups. Of the incorrect responses the proportion that were unsafe increased from 0.41 for low to 0.55 for high certainty(p=0.004). This was seen for the above standard group only with 0.37 for low to 0.64 for high certainty responses(p=0.002).
Conclusions: Unlike others, we found that lower scoring students were insightful and the number of unsafe responses were not proportional to incorrect responses. The increase in unsafe responses may be due to the nature of clinical decision-making; developing insight before foresight; or risk-taking.
Take-home messages: Certainty and safety response questions can be used in summative assessment and provide further information on and for students.

4F/2
Meta-evaluation of multiple choice questions (MCQs) in clinical anatomy: prevalence, outcomes and guidelines

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Background: The principles of writing effective multiple-choice test questions (MCQs) are well documented in educational measurement textbooks. However, few educators have formal instruction in writing MCQs and they often have item-writing flaws. The purpose of this study was to evaluate the effects of violations of standard multiple-choice item writing principles on item characteristics.
Summary of work: 920 test items from 10 examinations were classified as either standard or flawed. If flawed the exact type of item flaw or flaws contained within the question (including options) was recorded. Four judges (2 teacher/2 students), blinded to all item performance data, independently classified each item.
Summary of results: The flawed items prevalence was 54.7%. The most frequent flaws were: negative stem (18.1%), choice length not equal (11.6%), use none of the above (5.2%) and keep items dependent (4.8%) and not minimize reading (3.7%). Overall, the standard items are 4.5% easier than the flawed items (p=0.006) and the mean biserial correlation is 3.0% higher for the standard vs. the flawed items (p=0.016). However, the effect on difficulty and discrimination differs by each type of flaw.
Conclusions: The prevalence of flaws was high and in general had a negative impact on item characteristics.
Take-home messages: It is important to increase the formal instruction in MCQs item-writing in order to minimize item-writing flaws in future examinations.
The project was supported by PP_IJUP2011 67 grant

4F/3
MCQ vetting and students performance

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Background: MCQ vetting is important to ensure validity, reliability, and other quality indicators of such assessment tools. Faculty members invest a substantial amount of time and effort into the MCQ vetting process. However, there is a shortage of scientific evidence showing its effectiveness and at which level it needs to be focused on. This study aimed to provide evidence regarding the effects of question vetting process on students' examination performance by looking at their scores and pass-fail outcomes.
Summary of work: A parallel randomized control trial was conducted on third year medical students in a medical school. They were randomly assigned into two equal groups (i.e. control and experimental). Two mock examinations were conducted (time I and time II). At time I, non-vetted MCQs were administered to both groups as a baseline measurement. At time II, vetted MCQs were administered to the experimental group, while the same non-vetted MCQs were administered to the control group.
Summary of results: Out of 203 students, 129 (63.5%) participated in both mock examinations. 65 students were in the control group and 64 students were in the experimental group. Statistical analysis showed no significant differences ($p > 0.05$) in mean examination scores and pass-fail outcomes between or within the control and experimental groups.
Conclusions: This study indicated that the MCQ vetting process did not influence examination performance. Despite these findings, the MCQ vetting process should still be considered an important activity to ensure that test items are developed at the highest quality and standards.
Take-home messages: It can be suggested that such activity can be done at the departmental level rather than at the central level.

4F/4
Standard Setting for Written Short Answer Question (SAQ) Examinations

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Background: The Angoff method of standard setting is widely used for Multiple Choice Question (MCQ) Examinations. However, it presents conceptual and logistic problems when applied to Short Answer Questions (SAQs). We wished to explore the usefulness of the Borderline Regression method for establishing cut scores on written SAQs.
Summary of work: Examiners for six SAQs provided global ratings on a five-point scale in addition to total scores out of 20 for each SAQ assessed. We used total scores and global ratings from 360 second year medical students on each SAQ to develop cut scores using linear regression.
Summary of results: Average scores were relatively high across the SAQs (range 12.8–16.8), but with reasonable variation in scores and fairly consistent standard deviations. We predicted the scores of borderline students using a linear regression equation predicting total score from global rating categories. These scores ranged from 10.8 to 14.4 and served as the cut score for acceptable performance. More students fell below the Borderline Regression standard compared with a 50 per cent standard.
Conclusions: The Borderline Regression method can establish defensible standards in the context of written SAQs. With appropriate training, examiners can complete a global rating at the same time as they mark responses. Further exploration of standard setting methods is warranted to establish their usefulness for different assessments, and to consider the practical implications of their implementation.
Take-home messages: Defensible standards can be achieved for written exams using the Borderline Regression method and its use overcomes a number of logistic problems.

4F/5
Analysis of a Script Concordance Test (SCT) to evaluate treatment decisions in Physical Therapy: is item-response frequency analysis useful to improve test quality?

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Background: SCT is widely validated as reliable to evaluate decision-making in clinical reasoning (CR). Our aim was to develop and validate a SCT to evaluate CR in musculoskeletal disorders in Physical Therapy for 4th year students and recently graduated Physical Therapists (PT).
Summary of work: Five PT specialized in musculoskeletal disorders developed 38 vignettes with 155 nested items based on a blueprint of course objectives. Seventeen experts validated the test. The final SCT had 18 vignettes and 75 items. Cronbach and generalizability tests were run. Frequencies of item

responses of the expert panel were analyzed to better understand the way the experts answered.

Summary of results: Forty-six students and 27 graduates wrote the SCT. Even though the Cronbach alpha of the experts' and graduates' results was α=0,733 and α=0,706 respectively, the students alpha was low (α=0,546). The analysis of the frequencies of the item responses showed dispersion among experts in almost half the items, which can explain the students' results.

Conclusions: Even though the construction and validation of the SCT vignettes and items followed strict protocol, the students' Cronbach alpha was low. We postulate that the homogeneity of the distribution of answers from the expert panel partly explains the low alpha in this group. Our results reflect an inherent feature of the specialty.

Take-home messages: Improvement of the quality of evaluation instruments is crucial in all health professions. Validity and reliability analyses are important but not sufficient. Other aspects must be considered such as the concordance experts share on specific fields.

4G Short Communications: Curriculum: Rural Medical Education
Location: Conference Hall, PCC

4G/1
Do rural placements influence the attitudes of medical graduates towards rural practice?

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Background: In the face of a mal-distributed medical workforce in Australia, much attention has been paid to rural clinical placements a potential means of increasing interest in rural practice among medical graduates. Previous studies suggesting a positive effect of rural clinical placements have suffered from methodological limitations in study design, sampling, and failure to account for potentially confounding factors. We used data from a large national research project to examine the influence of rural and remote placements on attitudes to rural practice.
Summary of work: The Medical Schools Outcomes Database and Longitudinal Tracking Project (MSOD) is a national medical school multi-cohort longitudinal study that collects demographic and career intention measures, location and duration of clinical placements from all Australian medical schools. We explored the influence of placements, controlling for a number of demographic and contextual variables, using data from participants at commencement and exit from medical school (n=3268).
Summary of results: Rural/remote placement later in the program had a strongly positive effect upon future rural career intention. Students from rurally-focused medical schools were also more likely to endorse future rural career intention. However, the influence of these rural placements was overshadowed by the strong positive influence of prior rural background and rural intention at the time students commenced their studies.
Conclusions: To influence future rural career choice, characteristics of students at selection for medical study, and the nature of medical school culture warrant more attention than they have had to date.
Take-home messages: Rural clinical placement experiences are important, but may have more impact on future rural career choice if undertaken by students of rural origin.

4G/2
Successful interventions to improve human resources for health: The Stellenbosch University Rural Medical Education Partnership Initiative

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Jean Nachega (Stellenbosch University/ University of Pittsburgh, Infectious Diseases, Cape Town, South Africa)
Kalay Moodley (Stellenbosch University, Medical Education, Cape Town, South Africa)
Lilian Dudley (Stellenbosch Unniversity, Public Health, Cape Town, South Africa)
Susan Van Schalkwyk (Stellenbosch University, Medical Education, Cape Town, South Africa)

Background: Stellenbosch University was among thirteen African Universities awarded the Medical Education Partnership Initiative grant aimed at improving human resources for health in Africa. SURMEPI specifically aims to improve the quality and quantity of health care workers; retention in areas of need and regionally relevant research.
Summary of work: The project focuses on the development and evaluation of innovative medical education models that aim to support rural and underserved communities. The project uses two foci: medical curriculum renewal and health systems strengthening and development to render the delivery of transformative, systems based education.
Summary of results: Year three of the grant has shown significant outputs in training approximately 550 health care workers and faculty in Public Health, PALSA PLUS, Evidence Based Health Care, Infection Prevention and Control and HIV/TB management. In addition SURMEPI has provided 21 undergraduate students with funding for rural electives in the African region. Eight PhD and 18 Masters students conducting research in rural areas have been supported through mentorship and funding. Interdepartmental collaborations have led to context-specific, systems-based approach to medical education integrally linked to the graduate attributes of SU. ELearning has been a cross-cutting theme resulting in a shift and recognition of the benefits of eLearning for medical students at central and rural sites.
Conclusions: In the short time span of approximately three years, SURMEPI has achieved significant outputs in transforming medical education and improving human resources for health in rural Africa.
Take-home messages: Innovative models adequately incorporated into institutional systems will promote the transformative education agenda at medical schools.

4G/3
Rural electives - providing transformative learning opportunities and influencing choice of career: The Stellenbosch University experience

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Background: Rural background and longitudinal rural clerkships for medical students including training at rural medical schools are established predictors for rural practice. Considering that less than a third of all South African medical students originate from rural areas and are educated in urban universities, additional strategies are necessitated to encourage rural career choices. This study explores the benefits of a one month rural elective in influencing further rural practice and is funded by the Stellenbosch University Rural Medical Education Partnership Initiative.

Summary of work: This qualitative study evaluated rural elective students' learning experiences and possible influences on future career choice. Online anonymised surveys and feedback from focus group discussions were analysed to identify recurring themes.

Summary of results: Students described the rural elective as an enriching experience and a positive opportunity facilitating exposure to the context in which they will ultimately work. Adapting to environments with limited resources and populations with varying cultural backgrounds were embraced and valued by students. In addition, learning opportunities for community engagement and patient-centred care were seen to inspire students to return to rural areas.

Conclusions: Rural electives provide transformative learning experiences that could influence urban educated medical students' choice of working in rural areas. Further investigation of this model is recommended.

Take-home messages: Innovative medical education models offering shorter periods of rural exposure may serve to enhance rural recruitment in South Africa.

4G/4
What is the impact of an integrated community clerkship on students' attitude toward stressors of rural practice?

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Background: In 2008 the University of Calgary Medical School implemented an integrated community clerkship (ICC) in the third and final year. ICC students spend 36 weeks in a rural community where family physicians act as primary preceptors. ICC students follow patients longitudinally and simultaneously complete mandatory rotations in family medicine, emergency medicine, obstetrics and gynecology, psychiatry and anesthesia. The clerkship of non-ICC students is rotation-based (RB) and their main community exposure is via family medicine (6 weeks) at rural, regional and urban practices.

Summary of work: We surveyed students (classes of 2009 - 2011) pre-post ICC and family medicine rotations to determine whether attitudes change over time. Responses to 6-point survey items that measured stressors of rural practice (dependent variable – lower mean scores reflect a positive attitude) were analysed according to location and time (independent variables) using a priori contrasts. Alpha was set at .05.

Summary of results: Pre-post rotation data were collected from 212 (48%) students. The mean (3.32) reported by ICC students at post rotation was significantly lower than their pre rotation mean (3.60). The mean (4.02) reported by urban RB students at post rotation was significantly higher than their pre rotation mean (3.77). Means reported by students at rural RB and regional RB sites did not change. At post rotation the ICC mean was significantly lower than all other means.

Conclusions: Over time the initial concerns of ICC students about the stressful aspects of rural practice were alleviated.

Take-home messages: ICC students reported more favourable attitudes.

4G/5
Teaching Primary Care Obstetrics: Insights and Recruitment Recommendations of Family Physicians

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Judith B Brown (Western University, Family Medicine, London, Canada)
John M Jordan (Western University, Family Medicine, London, Canada)

Background: It has become challenging to recruit family medicine residents to primary care obstetrics practice upon their graduation. This is, in part, due to the lack of family physician teachers who practice intrapartum care, and who serve as positive role models for learners.

Summary of work: One-on-one interviews were used to explore the experiences and recruitment recommendations of family physicians who practice and teach primary care obstetrics. Participants were all family physicians from Edmonton, Canada who practiced primary care obstetrics in group systems of care. There were 12 participants in this study, which is the number of participants at which saturation was reached. The interviews were audiotaped and transcribed verbatim. All transcripts were analysed individually by each investigator, and as a group of investigators, in an iterative and interpretive manner. Emergent themes

were analyzed to determine the primary care obstetrics teaching experiences of the participants in this study.

Summary of results: Data analysis revealed findings categorized as follows: 1) poor confidence in teaching abilities, 2) challenges of having learners, 3) benefits of having learners, and 4) recommendations for recruiting learners to primary care obstetrics.

Conclusions: Although the participants described limited confidence as teachers, and challenges with learners, they also identified positive influences which sustained their interest in teaching.

Take-home messages: Supporting these family medicine obstetrics educators, and recruiting more such positive role models, are strategies that could be employed to encourage family medicine learners into careers involving primary care obstetrics.

4H Short Communications: Clinical Teaching 2
Location: Club H, PCC

4H/1
Adaptation during third-year clerkship: The lived experiences of medical students at the Northern Ontario School of Medicine

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Background: Hafferty (1998) distinguished three interrelated concepts of what medical students learn: formal, informal, and hidden curriculum. Of the three concepts, the hidden curriculum has been the least explored in medical education. The authors who have explored notions of hidden curriculum have demonstrated how the experiences of medical training entrenched in the hidden curriculum can have a profound impact on medical student adaptation.
Summary of work: The Northern Ontario School of Medicine's (NOSM) clerkship year consists of a mandatory eight-months of living and working in rural and northern communities throughout Northern Ontario and learning in the context of rural family practice. I explored how 12 third-year students described the challenges they had to manage and, in response, the strategies they employed to adapt to their clerkship. Data collection included: pre-clerkship interviews and a demographic questionnaire, mobile methods in the form of 'guided walks', and post-clerkship interviews. Vignettes were developed using the co-constructed narratives to present the participants' lived experiences.
Summary of results: I will provide a rich description of events experienced such as training in one's hometown or familiar community, transitions including adjusting to the clinical setting and to the medical profession, the influence of clerkship on career path, personal well-being, and empathy.
Conclusions: The findings serve to advance our understanding of students' adaptation processes throughout a longitudinal integrated clerkship. Implications for medical students, community preceptors, and medical schools will be discussed.
Take-home messages: I will propose recommendations regarding the suitability of authentic qualitative methods in medical education research, and discuss the implications for rural and northern health research.

4H/2
Enhancing teaching and learning in service environments with rapid patient turnover

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Background: Clinicians in acute settings face ever-increasing workloads and pressure to achieve early discharge. Time for teaching is limited due to service demand and high patient throughput. Opportunities for students to examine patients with a variety of physical signs and clinical features, as stipulated in the Curriculum, are limited due to the shortened length of patient stay.   Many medical students complete their training, often with minimal experience of direct supervision of their clinical technique. Masterclasses were established to address this unmet need.
Summary of work: Patients with illustrative case histories and physical signs were invited to attend focused teaching sessions on a voluntary basis.   The visits did not form part of their care. Transport and refreshments were provided. Over two years, patients with a wide range of clinical features participated in a series of themed systems based sessions. No more than one or two students saw each patient whilst being directly observed by a consultant. This enabled constructive feedback on eliciting physical signs, discussion on differential diagnoses, further investigation and management.   A tutorial approach fostered wider discussion, emphasising learning points.
Summary of results: The Masterclasses were consistently highly rated by students against a range of criteria, including organisation, content, relevance, teaching style and patient selection. Students became more confident in clinical examination skills and were stimulated to practice these skills further. Patients not only valued the experience, but also commented on how much they learnt about their own medical conditions.
Conclusions: Masterclasses deliver focused teaching based on direct supervision and constructive feedback to enhance learning.
Take-home messages: Teaching the clinical skills necessary for focused history taking and eliciting physical signs is challenging in settings with high patient throughout. Masterclasses provide an effective solution.

4H/3
Does the number of patients seen by medical students relate to examination performance?

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Background: The association between number of patients seen by medical students and their performance in written and clinical skills exams is not clearly defined. Our study investigated this relationship.
Summary of work: Log book data from sixty-four 3rd year medical students who completed their 12-week internal medicine clerkship at the University of Hawaii were analyzed. The relationship between the number of patients seen to board examination (NBME) scores, objective-structured clinical examination (OSCE) scores, type (longitudinal (L)/block (B)) and order of rotation (inpatients/outpatients) was analyzed.
Summary of results: Overall, there was no significant relationship between total number of patients seen to examination scores. However, there was a positive correlation for students enrolled in a conventional B clerkship between NBME exam scores and the number of ambulatory patients seen ($R=0.42$, $p=0.004$). B students who did outpatient rotation first followed by inpatient, had positive correlation between numbers of ambulatory patients seen and NBME exam scores ($R=046$, $p=0.019$). Students in a longitudinal community clerkship who did outpatients first had positive correlation between number of inpatients seen and OSCE scores ($R=0.70$, $p=0.016$).
Conclusions: A number of factors such as total patient numbers seen, clerkship pathway, and order of rotation seem to affect examination performance. Further research is needed to confirm these findings and explore possible explanations.
Take-home messages: Doing outpatient clinic first and seeing more ambulatory patients seemed to confer an advantage. To improve student clinical performance, medical educators need to identify and improve upon curricular design variables that may adversely affect student learning.

4H/4
Faculty sequencing of learning experiences for medical trainees

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Background: Learning in the clinical setting can appear to rely more on opportunistic than deliberately sequenced developmentally appropriate teaching. The cognitive apprenticeship model describes curricular sequencing/ordering of learning activities with increasing complexity, diversity, and specificity to promote learner development. This study aimed to determine if experienced clinical educators employed sequencing as a teaching strategy to structure/select clinical learning opportunities for medical trainees.
Summary of work: We conducted semi-structured interviews with medical school faculty who were identified as excellent teachers and taught learners at multiple levels. We asked them to discuss their approach to teaching different level learners and their perceived role in promoting learners' developmental progression. We performed thematic analysis of the interview transcripts using open coding and then examined codes for alignment with the framework of curricular sequencing to verify the presence of sequencing in clinical teaching.
Summary of results: We interviewed 14 faculty. Thematic analysis revealed that faculty described clinical teaching as mostly opportunistic with little faculty control over context. To manage the relatively fixed contexts, faculty employed sequencing to structure learning. Based on learners' levels of training and individual learner capabilities, they increased complexity, diversity, and specificity of content taught (general approaches before evidence-based management for specific situations). They also organized their teaching along hierarchies of learning (information gathering before sharing). Faculty relied on curricular objectives and developed personal sequencing approaches through experience.
Conclusions: Faculty use sequencing to match available learning opportunities to learners' developmental levels.
Take-home messages: Faculty development should include deliberate focus on sequencing as a teaching strategy.

4H/5
Influence of Attending Physician Specialty on the Uptake of Clinical Learning Opportunities During Simulated Morning Case Review

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Background: "Curriculum-by-random-opportunity" within major clerkship blocks is assumed to fulfill undergraduate learning objectives related to underprivileged curricular areas such as palliative care or geriatrics. However, research has found that teaching/learning opportunities regarding such objectives are rarely taken up by attending physicians. Using the example of geriatrics, this study explored the role of attending specialty in this phenomenon.

Summary of work: Four admission histories for elderly patients were scripted to include teaching/learning opportunities regarding geriatric core competencies. A simulated student orally presented 1-3 admission histories to each of 24 internal medicine ward attending physicians (12 geriatricians and 12 internists) who were instructed to respond as they normally would during a one-hour morning round. Semi-structured interviews following the case discussions explored how attending physicians chose the topics they taught about. Transcribed audio-recordings of 66 case review discussions were analyzed using template and inductive analysis.

Summary of results: Geriatrician and internist attendings varied in terms of their degree of uptake of the geriatric teaching/learning opportunities built into the cases. Geriatricians taught about both geriatric (e.g, delirium, transitions of care, mobility) and non-geriatric issues (e.g., diabetes, pneumonia, and atrial fibrillation), while the non-geriatricians emphasized non-geriatric issues even when geriatric issues were relevant to the presenting illness.

Conclusions: In curriculum-by-random-opportunity, attending specialty influences the degree to which case review discussions take advantage of learning opportunities related to curricular objectives such as geriatrics.

Take-home messages: In curriculum-by-random-opportunity, attending specialty influences the degree to which teaching/learning opportunities are taken up in morning case review discussions.

4H/6

How can students' diagnostic competence benefit most from practice with clinical cases? Effects of structured reflection on future diagnosis of the same and novel diseases

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Background: To develop diagnostic competence students should practice with many examples of clinical problems to build rich mental representations of diseases. How to enhance learning from practice with clinical cases remains unknown. We investigated the effects of reflection upon cases as compared to generating single or differential diagnosis.

Summary of work: During the learning phase, 110 medical students diagnosed 4 cases of 2 criterion-diseases under three different experimental conditions: generating single diagnosis, generating differential diagnosis, or structured reflection (i.e., comparing and contrasting scripts of diagnoses considered for the case against the patient's findings). One week later, they diagnosed 2 novel exemplars of each criterion-disease and 4 cases of new diseases that were not among the cases of the learning phase but were plausible alternative diagnoses.

Summary of results: Diagnostic accuracy scores (range:0-1) did not differ among the groups in the learning phase. One week later, the reflection group significantly outperformed the other groups when diagnosing new exemplars of criterion-diseases (reflection: 0.67; single-diagnosis: 0.36, $p<.001$; differential-diagnosis: 0.51, $p=.014$) and cases of new diseases (reflection: 0.44; single-diagnosis: 0.32, $p=.010$; differential-diagnosis: 0.33, $p=.015$).

Conclusions: Structured reflection while practicing with cases enhanced learning of diagnosis both of the diseases practiced and of their alternative diagnoses, suggesting that reflection not only enriched mental representations of diseases practiced relative to more conventional clinical learning approaches, but also influenced representations of adjacent but different diseases. Structured reflection seems a useful addition to the existing clinical teaching methods.

Take-home messages: Providing students with guidance for reflection upon problems can foster learning of clinical diagnosis.

4I Short Communications: Postgraduate Education: Trainee Workload and Wellbeing
Location: Club A, PCC

4I/1
Contextualizing the Canadian resident duty hours debate: results from a national survey

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Julia Selig (Royal College of Physicians and Surgeons of Canada, Office of Education, Ottawa, Canada)
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Katherine Moreau (Children's Hospital of Eastern Ontario, Clinical Research Unit, Ottawa, Canada)
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Background: Postgraduate resident duty hours (RDHs) impact the physician workforce around the world. However, no country has simultaneously examined the perceptions of multiple PGME stakeholders. This study compared residents', program directors', postgraduate deans', and hospital administrators' current perspectives on RDHs in Canada.
Summary of work: 12,672 residents, 766 program directors, 17 postgraduate deans, and 116 hospital administrators were invited to complete an online instrument exploring perceptions. A modified Dillman method was used with four contacts, and data were analyzed using descriptive statistics in SPSS.
Summary of results: Overall, 3995/13 571 completed one of the four surveys, constituting a response rate of 29%. In terms of defining a "reasonable total number of clinical hours" for residents' weekly work, 34% of residents stated 50-59 hours, 29% of program directors reported 50-59 hours, and 46% of postgraduate deans indicated 60-69 hours. In terms of reforming RDHs, 61% of residents, 77% of program directors, 85% of postgraduate deans, and 74% of hospital administrators said that RDHs should be tailored by discipline. 56% of residents, 46% of program directors, 69% of postgraduate deans, and 65% of hospital administrators indicated that they would support a reduction in the number of consecutive RDHs worked.
Conclusions: These findings suggest the complexity of issues, divergent views among stakeholders regarding RDH impacts, and some homogeneity in terms of directions for RDH reform. They also demonstrate the importance of exploring this topic from various perspectives, with implications for resident wellness, patient safety, medical education, and healthcare delivery.
Take-home messages: A comprehensive view of multiple PGME stakeholders can inform evidence-based RDH policy-making.

4I/2
A study of experiential learning and continuity of care in post EWTD hospital setting

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Background: Experiential learning has traditionally been integral to medical education. The recent adoption of European Working Time Directive (EWTD) has limited trainees' clinical availability and opportunities to follow up patients admitted under their care. The restricted working time has also meant break in continuity of care (COC) from a patient perspective. Our aim was to quantify follow up opportunities both from patient and trainees' perspective in post EWTD – hospital setting.
Summary of work: 144 patients admitted over 3 days were followed up through to discharge. Parameters of interest were systematically recorded. 113 records have been analysed so far. We present the data on 102 patient admissions, after 11 exclusions.
Summary of results: 73% of patients were admitted for 2 or more days. In 32%, the discharge diagnosis was different to admitting diagnosis. 83% of doctors do not get to follow up patients they admitted. 56% of patients were seen by 4 or more different doctors during their admission. Number of different doctors caring for a patient during single admission strongly correlates with length of stay (R 0.79).
Conclusions: ETWD has meant loss of experiential learning for trainees and break in COC for patients. In our hospital, we propose that admitting trainees get an electronic copy of the discharge to compensate to some extent for the loss of experiential learning.
Take-home messages: There is a need for "system" change to enhance follow up opportunities to improve medical training. Clear documentation is vital to maintaining consistent communication.

4I/3
Effect of sleep deprivation on cognitive function

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Rebecca Horgan (Royal College of Surgeons, Medicine, Dublin, Ireland)
Tom Branigan (Royal College of Surgeons, Medicine, Dublin, Ireland)
Noel Gerard McElvaney (Royal College of Surgeons, Medicine, Dublin, Ireland)

Background: Irish NCHDs continue to regularly work 24-36 hour shifts, despite this contravening EWTD. It has been established that sleep deprivation affects

parameters such as motor skills. Our study examined the effect on cognitive impairment.

Summary of work: Doctor cognitive function was tested at baseline and within 4 hours of finishing an on-call shift (minimum 24 hours).Total sleep, nutritional intake, subjective confidence in dealing with an emergency and subjective sharpness were recorded.

Summary of results: 37 doctors performed both tests. Mean sleep time recorded: 138.7 minutes, mean length of a sleep period: 40 minutes. Post-call cognitive impairment was recorded in 19 doctors by a statistically significant change in cognitive function calculated by the CogState software. Cognitively impaired residents (CIR) had mean sleep time of 105 minutes, versus 174 minutes for cognitively unimpaired residents (CUR), p = 0.01. Ratings of personal ability to manage an emergency did not vary between CIR versus CUR. Nutritional intake demonstrated normal calorific intake.

Conclusions: This study is the first to use a validated measurement tool to objectively assess the effect of sleep deprivation during on-call on residents' cognitive function. It shows 50% of doctors have significant impairment in cognition post-call. It indicates duration of sleep on-call relates to degree of cognitive decline. Residents with objective cognitive impairment did not recognise their own cognitive deterioration, when asked to rate same.

Take-home messages: Current on-call practices causing sleep deprivation negatively affect cognition and thus patient care.

4I/4

The Impact of a Health and Well-being Workshop for Interns: Focusing on Resilience and Positive Change

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Joanna M Strom (Counties Manukau District Health Board, Auckland, New Zealand)
Marcus A Henning (University of Auckland, Centre of Medical and Health Sciences Education, Auckland, New Zealand)
Andrew D MacCormick (University of Auckland, South Auckland Clinical School, Auckland, New Zealand)
Susan J Hawken (University of Auckland, Department of Psychological Medicine, Auckland, New Zealand)
Andrew G Hill (South Auckland Clinical School, University of Auckland, Auckland, New Zealand)

Background: Increasing burnout and poor quality of life among doctors has potential adverse implications for patient care and physician well-being. A two-day health & well-being workshop ("SMARTshop") was implemented at Middlemore Hospital, Auckland, New Zealand, for interns and its impact on interns' knowledge, attitudes and behaviours towards self-care was evaluated.

Summary of work: In 2011, 33 first-year interns each attended one of four SMARTshops. The workshop placed a strong emphasis on self reflection and the practical application of skills and relevant tools such as identifying personal early warning signs of stress and learning a variety of relaxation techniques. A mixed-methods study was conducted to evaluate their impact and involved focus groups and a structured survey.

Summary of results: Quantitative data collated from 30 (91%) surveys demonstrated knowledge, perception and attitudes toward health and wellbeing were unchanged or improved. An exploratory factor analysis identified 3 factors: developing techniques for workplace stress and time management, application of specific and immediate self-care techniques, and seeking opportunities to use self-care techniques. Focus groups were attended by 21 interns and results suggested a greater knowledge and awareness of strategies that promote health and well-being. Most commonly reported were knowledge of relaxation techniques and greater awareness of the need for work/life balance.

Conclusions: A two day health and well-being workshop for interns had a positive impact on attitudes, knowledge, and behaviours related to self-care. Its ongoing effects remain of great interest for program co-ordinators.

Take-home messages: A health and well-being workshop for interns had a positive impact on attitudes, knowledge, and behaviours related to self-care.

4I/5

Mind How You Go

Lorraine Close (University of Edinburgh, Centre for Medical Education, Chancellors Building, 49 Little France Crescent, Edinburgh EH16 4SB, United Kingdom)
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Janet Skinner (University of Edinburgh, Centre for Medical Education, Edinburgh, United Kingdom)

Background: Mindfulness, the practice of learning to focus on the present moment through developing attention to breath awareness and practising daily meditation is increasingly being recognised as an effective way to help health professionals cope with burnout, stress and anxiety, all of which have a negative impact on quality of patient care.

Summary of work: Research was carried out by a group of first year medical students from the University of Edinburgh to investigate if Foundation Year (FY) doctors consider themselves to suffer from stress, if they feel able to be present in the moment both in clinical practice and out of work and how open to practising mindfulness FY doctors may be. Questionnaires were issued to approximately 30 FY doctors working in the local area.

Summary of results: Initial results suggest that a high number of junior doctors feel unable to 'switch off' and have difficulty focusing on interactions with patients. Many FY Doctors were familiar with the term 'mindfulness' but did not have a clear understanding of what it means. They were sceptical about it due to a perceived lack of research

Conclusions: Full results and conclusions of this study will be presented at conference.
Take-home messages: The introduction of mindfulness training to FY and medical school curricula may reduce stress amongst FY doctors, impacting positively on job satisfaction and patient care.

4J Short Communications: Junior Doctor as Teacher
Location: Club E, PCC

4J/1
Starting up a new teaching programme: 12 lessons learned from the junior doctor front-line (*Miriam Friedman Ben-David 2012 Award Winner Presentation*)

Tesesa Tsakok (Guy's and St Thomas' NHS Foundation Trust in London, United Kingdom)

Teresa Tsakok was awarded the 2012 Miriam Friedman Ben-David New Educator Award by unanimous vote among the Committee of AMEE for 'work in medical education covering a wide range in a relatively short time… effective in developing the skills of others as well as your own'. Here she offers a ground-level perspective on the advantages of trainee-led initiation and delivery of medical education, as well as its inherent challenges. Teresa studied Medicine at Oxford, developing an early interest in both medical education and scientific research, and has trained to date within the integrated academic pathway, first as an Academic Foundation doctor and currently as an Academic Clinical Fellow and Core Medical Trainee.
She is based at Guy's and St Thomas' NHS Foundation Trust in London, where as a first year doctor she was struck by the lack of easily accessible teaching and learning opportunities, as well as the need for greater rapport between junior doctors and medical students. She therefore set up the MedEd programme, bringing both parties together for mutual benefit, with an emphasis on bedside teaching. This has since expanded in scale to become recognized as an integral component of the undergraduate experience at King's College London School of Medicine.
The opportunities and challenges encountered, together with lessons learned along the way, will form the basis of this talk. In particular, Teresa will highlight barriers to embedding a new teaching initiative within the culture of an institution, and subsequently ensuring its sustainability. She will also discuss the continual pressure to innovate and expand a successful teaching programme, and how this may be addressed.

4J/2
Improving Residents' Perceived Abilities as Teachers using Simulation

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Linda Snell (McGill University, Royal College of Physicians and Surgeons of Canada, Centre for Medical Education, Montreal, Canada)

Background: Residents, interns and junior doctors play a significant teaching role for junior colleagues and medical students. However few receive training in teaching and most are left to 'figure it out' on their own. Simulation-based education provides an authentic and safe learning environment but has infrequently been used to improve residents' teaching skills.
Summary of work: We implemented a simulation-based, academic half-day to improve residents' teaching skills at McGill University, Canada. Faculty included expert clinician-teachers and residents with expertise in education. We evaluated the overall value of the program and residents' perceived learning using the retrospective pre-post survey questionnaire with a 5-point Likert-scale (1='not at all', 5='to a large extent').
Summary of results: 53/80 participants completed a post-workshop questionnaire, indicating the program met their learning needs (4.1/5), there was adequate opportunity for practice/participation (4.5/5) and they would recommend the program to colleagues (4.4/5). The mean of all retrospective pre-scores was 3.3 and post-scores was 4.0.
Conclusions: Residents believed the workshop prepared them to identify their role as teacher and be comfortable with it, describe important concepts in education and apply them to their teaching and reflect on their practice as teachers. Simulation may be a valuable strategy to help residents engage in their roles as teachers and to improve their perceived teaching abilities. Further research should address if this improves their teaching abilities in practice.
Take-home messages: Well designed simulation-based Resident-as-Teacher Programs are well received and can help residents improve their perceived teaching abilities.

4J/3
Impact of a rotation in medical education on the development of a teacher identity for senior residents of Université de Montréal

Geneviève Grégoire (Université de Montréal, médecine, Montréal, Canada)
Suzanne Laurin (Université de Montréal, Médecine familiale et médecine d`urgence, Montréal, Canada)
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Background: Senior residents, even though they teach junior residents and clerks and have received a basic medical education formation, see themselves as physicians. The medical education centre of the Faculty of Medicine of Université de Montréal has developed a four weeks elective Medical education rotation for senior residents who intend to practice in a teaching hospital. We were interested to know if and how such a rotation could affect the construction of a professional teaching identity for the senior residents.
Summary of work: The conceptual framework was based on Susan Starr's model and the 7 themes described as part of the teacher identity: intrinsic satisfaction, knowledge and skill about teaching, belonging to a community of teachers, receiving rewards for teaching, believing that being a doctor means being

a teacher, feeling a responsibility to teach, and sharing clinical expertise. Exploratory research using qualitative and quantitative methodology was conducted. We conducted focus groups to collect data about opinions, beliefs and attitudes about teaching. A short questionnaire was delivered and three focus groups were conducted with the five residents before, at the end and six months after the rotation. On the basis of the verbatim responses, a thematic analysis was conducted using Atlas TI software.

Summary of results: Indicators of the development of professional identity as teachers were identified. We also highlighted other elements that illustrate the development of this professional identity, such as the integration and the appropriate use of educational concepts and vocabulary, the development of a reflective process and the transfer of some concepts and educational competencies in other contexts.

Conclusions: Participation in a medical education rotation fosters the construction of a teacher identity among senior residents.

Take-home messages: Understanding how residents think about their teaching role and identity could help Medical schools to recruit and prepare physicians to be better and more involved teachers.

4J/4
A faculty-facilitated near-peer teaching programme: an effective way of teaching undergraduate medical students

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Sreekanth Sakthibalan (Princess Alexandra Hospital, Foundation Programme, Harlow, United Kingdom)
Andrew Peetamsingh (Princess Alexandra Hospital, Foundation Programme, Harlow, United Kingdom)
Frances Hiscock (Princess Alexandra Hospital, Foundation Programme, Harlow, United Kingdom)
Peter Bishop (Princess Alexandra Hospital, Education, Intensive Care Unit, Harlow, United Kingdom)

Background: Senior residents, even though they teach junior residents and clerks and have received a basic medical education formation, see themselves as physicians. The medical education centre of the Faculty of Medicine of Université de Montréal has developed a four weeks elective Medical education rotation for senior residents who intend to practice in a teaching hospital. We were interested to know if and how such a rotation could affect the construction of a professional teaching identity for the senior residents.

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Conclusions: Participation in a medical education rotation fosters the construction of a teacher identity among senior residents.

Take-home messages: Understanding how residents think about their teaching role and identity could help Medical schools to recruit and prepare physicians to be better and more involved teachers.

4J/5
The Development of an Objective Structured Teaching Examination for Foundation Doctors

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Gerard John Byrne (University of Manchester & UHSM Academy, Faculty of Medical and Human Sciences, Manchester, United Kingdom)

Background: Teaching is an important role of doctors. Junior doctors in the UK often teach basic clinical skills to medical students. In the UK there is no formal programme for teaching doctors to teach or to assess their teaching abilities. We aimed to devise a feasible and reliable teaching assessment.

Summary of work: US Objective Structured Teaching Examination (OSTE) stations were reviewed and found to be unfeasible for use with UK junior doctors. An expert panel created six shorter stations. We ran an OSTE in which junior doctors taught, and were assessed by, medical students. We collected evidence regarding the feasibility, validity and reliability of our OSTE.

Summary of results: The majority of students were able to complete mark sheets easily. Three markers reported that the doctors found it difficult to close the teaching session. Simple linear regressions of checklist to global scores ranged from 0.29 to 0.91. Internal consistency reliability was 0.682 (Cronbach's alpha). Doctors reported that the experience was beneficial.

Conclusions: Overall the OSTE was feasible and acceptable to doctors and students. There is evidence of validity in four stations with moderate associations of checklist and global scores. The internal consistency

reliability was moderate to high: good for a small sample size. The OSTE was feasible, acceptable, valid and reliable in this small study of foundation doctors teaching medical students.

Take-home messages: We need to train and assess doctors in teaching clinical skills. The OSTE is a promising way of doing this.

4J/6
Improving resident teaching through clinical case conference presentations in Japan

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Background: At the University of Tokyo School of Medicine, interactive clinical case conference discussions, hosted by clinical teaching faculty, are an increasingly popular teaching methodology for improving the clinical reasoning skills of medical students and junior residents. We wanted to investigate whether or not mentoring senior residents to take on a formal teaching role in this conference could improve their confidence in their abilities to teach.

Summary of work: From November 2012 through March 2013, seven 1-hour clinical case conferences were presented. For each conference, a power point presentation of an actual patient was chosen and prepared by the teaching resident. Mentored by one author experienced in clinical education (JGW), the residents were encouraged to construct their presentations in a fashion that would encourage active audience participation and would emphasize concrete learning goals for the conference participants. Conferences were presented in both English and Japanese using translation. Outcomes were measured using a 5-point Likert-type retrospective pre-post-survey asking the residents to self-evaluate specific teaching skills and also their overall abilities to teach before and after their presentations. Descriptive comparisons between pre- and post-test scores were assessed using the student t-test.

Summary of results: All teaching residents found the mentored presentations valuable. Survey results demonstrated statistically significant improvement in self-assessed teaching skills for organizing and presenting the material as well as recognizing and expressing key learning points.

Conclusions: We were able to demonstrate improvement in the residents' self-evaluated teaching ability following a brief mentored educational intervention.

Take-home messages: Mentoring residents on effective presentation skills may improve a program's educational quality.

4K Short Communications: Education Management
Location: Club B, PCC

4K/1
Overview of the world`s medical schools

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Background: There has been increasing interest in strategic investment in medical education worldwide. Simultaneously, some regions have seen rapid expansion of the number of medical schools. However, little data is available on the status of medical schools or trends within medical education internationally which is a major challenge when developing strategies to address shortages in physician workforce.
Summary of work: We used publicly available data from the International Medical Education Directory and Avicenna Directories. We sought additional information by sending a semi-structured questionnaire to a selection of medical schools. Whenever there was incongruence between sources, we contacted Ministry of Health, National Agency for Accreditation or similar bodies. Additionally, we identified key informants for country-level specific information. We used descriptive statistics to analyze current medical school data by country.
Summary of results: There are currently over 2500 medical schools worldwide, with the largest numbers in India (296), Brazil (182), USA (166), China (145) and Pakistan (86). Of 193 independent states, 64 have no medical school while 53 have only 1. Regionally, the number of schools per 1 million population differ greatly with the Caribbean having 1 school per 0.65 million population, Americas 1/1.2M, Oceania 1/1.3M, Europe 1/1.8M, Asia 1/3.5M, and Africa 1/5M.
Conclusions: Combining medical school locations with population figures and physician density provides insight in geographical distribution of training programs.
Take-home messages: The total number and distribution of medical schools around the world is not well matched with existing physician numbers and distribution, and there is a particular misbalance in Caribbean and Africa.

4K/2
Government role in medical education in Brazil

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Eliana Amaral (Unicamp, Obstetrics and Gynecology, Campinas, Brazil)
Jaqueline Barboza (Unifenas, Medical Psychology, Alfenas, Brazil)
Silvana Novais (Unifenas, Public Health, Alfenas, Brazil)

Background: The educational system should not be left out of planning of the National Health System. University autonomy should not distance it from the social responsibility of education. It is understood, in Brazil, that the Government should develop policies that induce universities to fulfill their social function (Ceccim, Feuerwerker, 2004).
Summary of work: In 2005, The Pro-Health Program (Reorientation of Vocational Training in Health), led us to propose a community-based learning. This approach starts from the first semester of the medical course, with the following modules: Policies and Health Practices in Community, Surveillance and Health Education, Maternal and child Care, Clinical and Psychosocial Anamnesis, and Therapeutical Assistance.
Summary of results: One Commission to Integrate Service and Medical School was founded; students began to collaborate with health teams, developing functions together and not just doing passive observation; three guidelines for practical activities for students in the early years were produced according to national primary health policy. The Pro-Health Program reinforces the processes of changes developed in Brazil since 2001. The reciprocal interaction between medical School and Health System created real conditions for a better development of both, with better technical quality in Health Care and learning process (Puccini et al. 2012).
Conclusions: The Pro-Health was in fact an inducing policy of the State that provided a more comprehensive and better training in Primary Health.
Take-home messages: "Nobody educates anybody, no one educates himself, we all educate each other, mediated by the world" (Freire, 1981).

4K/3
Spending £10k a minute transforming a 1m strong health workforce

Ian Cumming (Health Education England (HEE, United Kingdom)

Background: Health Education England (HEE) is a new organisation created to improve the quality of care by focussing on education, training and developing the current and future workforce. A simple stated outcome, but a monumental task.
Summary of work: HEE spends £5bn per annum to educate, train and develop the NHS workforce, but how we spend that money is changing. We are focussing on recruiting, training and appraising for values. We are developing new roles, training in the community not hospitals and creating a dementia aware workforce. Quality Improvement Science and Genomics are also at

the centre of educating a new workforce for a new future.

Summary of results: We are creating 4000 new community health visitors. We will train 100,000 staff to be dementia aware this year alone. We will spend £15m education and training the current workforce in genomics and in creating a new specialty of Bio-informaticians. We will assess the values of every potential new recruit into either jobs or education for their values; and say no to those who fail, and we will use gamification of our careers service to attract the next generation from our schools into careers in the NHS.

Conclusions: Only fundamental change to our whole workforce, from before a teenager makes a career choice through to a consultant mentoring on their last day on the job, can we make a workforce fit for the future.

Take home messages: Tinkering at the edges will fail staff, patients and ultimately sustainable healthcare provision for the next generation.

4K/4
Implementation of the Physician Assistant in Dutch health care organizations: Primary motives and outcomes

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Theo Wobbes (HAN University of Applied Science, Physician Assistant Program, Nijmegen, Netherlands)

Background: Physician assistants (PAs) are trained to perform medical procedures that were traditionally performed by physicians. In the Netherlands however, the PA is a relatively new professional.

Summary of work: To gain insight in the primary motives of specialists to employ a PA and the outcomes of the implementation, we interviewed supervising medical specialists who applied a PA in their practice. The interviews were semi-structured and took one hour. Two scientists coded the findings with respect to motives and outcomes. In total 55 specialists were interviewed about their motives to employ a PA and 15 about the outcomes of employing a PA.

Summary of results: With respect to the primary motives to employ a PA, the most frequent motive was to increase continuity and quality of care, followed by relieve of the specialist's workload, increase in efficiency of care and substitution of the medical resident. The outcomes were in accordance with the motives.

Conclusions: The preliminary results about the PAs in the Netherlands seem to meet expectations of Dutch medical specialists and are in accordance with the American results.

Take-home messages: Medical specialists are satisfied with the employment of PAs in their practice.

4K/5
Manpower planning in Post Graduate Medical Education: Is there a need for an EU-policy?

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Angelique Reinders (University of Groningen, UMC Groningen Postgraduate School of Medicine, University Medical Center Groningen, Groningen, Netherlands)
Raquel de Vito (University of Groningen, Postgraduate School of Medicine, University Medical Center Groningen, Groningen, Netherlands)
Johan Groothof (University of Groningen, Department of Health Sciences, University Medical Center Groningen, Groningen, Netherlands)
Jan Borleffs (University of Groningen, UMC Groningen Postgraduate School of Medicine, University Medical Center Groningen, Groningen, Netherlands)

Background: Manpower planning is a crucial topic in the 21st century in order to guarantee an adequate quality of healthcare. We examined the perspectives of EU-policymakers concerning manpower planning of medical specialists.

Summary of work: The so-called "CIA-project", was conducted with the use of a semi-structured questionnaire and stakeholder interviews in order to analyze three main aspects at the macro-system level: 1. Current situation and trends; 2. Importance of developments and desired innovations; 3. Attainability of desired innovations. The interviews were held among policymakers in eight selected EU-countries.

Summary of results: The results include a summary of the policies in terms of manpower planning in the field of PGME. Five of the eight countries indicate the need for more „generalists" in medical care. None of the eight countries agree that EU-policy assists in developing sufficient local training capacity. Capacity planning and employability appears to be of major importance in some countries, whereas it is of less importance in other countries.

Conclusions: A shared vision for EU-policy on manpower issues hardly exists. The conducted international analysis shows that a coherent policy between EU-countries is lacking e.g. mobility of doctors.

Take-home messages: We suggest the development of more synergy in policy and further research in order to control manpower in healthcare more effectively and better align the PGME curriculum with future quality goals.

4K/6
International Collaboration between the Brazilian Department of Health, its School and the University of Maastricht: Innovation in post-graduate health services and education

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Background: Health care is a citizen's right and a duty of the State under the Unified Health System (SUS) in Brazil. A mismatch exists between "reductionist, disease-oriented, hospital-centred, specialisation-driven education "and a strong demand by the government and the people for a more humanistic, health-oriented, education and service focused on primary health care, and socially committed professionals."
Summary of work: The Federal District of Brasilia created the Escola Superior de Ciências da Saúde, a SUS-based medical and nursing school within the Department of Health to reorient higher education to a profile consistent with national needs by employing faculty working in health services. Still, faculty are drawn from a traditional education system. Faculty development is a key issue in sustaining innovations. An international collaboration between the University of Maastricht School of Health Professions Education (SHE) and the Department of Health in Brasilia provided the nidus for faculty development and regional health challenges through post-graduate study.
Summary of results: Results from the first masters graduates focused on details of problematization methodology, minority performance as function of access to medical school, reorientation of nursing curricula to a continuum of authentic learning in health services, and ethics and professionalism in health systems research and education.
Conclusions: Unifying the Department of Health with health professions and post-graduate education can reorient health workers' profiles towards improving the health of people.
Take-home messages: The difference that makes a difference in the profile of health professionals to improve peoples' health is a post-graduate collaboration between the Brazilian Department of Health, the Escola Superior de Ciencias da Saude and the University of Maastricht, SHE.

4L Short Communications: Selection: Multiple Mini Interview
Location: Club C, PCC

4L/1
Validity of the Multiple Mini-Interview (MMI)

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performance on a selection MMI. The Deakin MMI, comprises ten stations of eight minutes duration, that assess qualities likely to underpin effective and professional encounters with patients and colleagues, maintenance of professional standards and social responsibility.

Summary of work: This study examined the usefulness of the MMI in predicting student performance during the Deakin Medical Course (DMC), a 4 year graduate program that incorporates 4 key themes; Doctor and Patient (DP); Knowledge of Health and Illness (KHI); Doctors, Cultures, Peoples and Institutions (DPCI); and, Ethics, Law and Professional Development (ELPD).

Summary of results: No statistically significant correlations were observed between individual MMI stations or total MMI score and performance in the four themes of the DMC, or the course overall. MMI score did, however, predict performance in the second year of the course (r=0.45, p=0.01). Of the three selection tools, GPA best predicted overall performance during the medical course (r=0.29, p=0.12). Combining GPA with MMI score improved predictive validity for overall performance (r=0.49, p=0.07), suggesting that 25% of variation in performance during the medical course may be accounted for by the combination of GPA and MMI score.

Conclusions: Although the study was limited by small participant numbers, the results suggest selection tools that provide information about cognitive and non-cognitive qualities may provide complementary information about medical school performance.

Take-home messages: Together, GPA and MMI score were particularly useful in predicting performance in the DMC.

4L/2
The impact on reliability of MMIs by using Skype and reducing the number of stations to 5

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Background: The Sydney Medical School conducts MMIs as part of its selection process. Two major policy changes have been introduced in recent years. Firstly, in 2011 Skype was introduced for conducting MMI interviews with international candidates while all local candidates continued to be interviewed in person. Secondly, the number of MMI stations was reduced from 9 to 5 stations in 2012 with 24 circuits.

Summary of work: Variance components analysis was used to assess the differences in reliability between 9 and 5 stations for the two methods of interviewing.

Summary of results: The reliability for the Skype MMI was found to be higher than the in-person MMI for 9 stations in 2011 and 5 stations in 2012; the Generalisability coefficient for Skype was 0.76 and 0.70 for 2011 and 2012 respectively and for in-person local interviews 0.70 and 0.63 for 2011 and 2012. While the reliability of 5 stations was less than that for 9 stations, the sources of variation changed in that there was less error variance and less variance due to the MMI question but more variance due to the interaction of candidate and interviewer.

Conclusions: The reduction in reliability from 9 to 5 MMI stations is not sufficient to threaten the reliability of the selection process, when the greatest sources of variation are candidates and interviewers and their interaction.

Take-home messages: Skype provides a cost efficient and reliable means of conducting MMI interviews and a reliable judgement can be made with as few as 5 MMI stations.

4L/3
Multiple mini interviews: checklist scores, global ratings or both?

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Background: In the health care professions, especially medicine and dentistry, the undergraduate programmes at most universities are over-subscribed, and it is therefore necessary to develop an objective and defensible selection process.

Summary of work: This work investigates the recruitment process for two different health care professional programmes (medicine and dentistry) using different models; one model using both a checklist and global rating, the other a global rating alone.

Summary of results: Both checklist and global ratings discriminated well between candidates with a high degree of internal consistency. In the model using both checklists and global ratings there was a high level of correlation between the two measures (R>0.8), but there were some interesting outliers when both rankings were compared, i.e. some candidates impressed assessors but had low checklist scores and vice versa. Although an outline of the stations soon appeared on the web, there was no noticeable improvement in performance over time for candidates who might have seen this material.

Conclusions: Whilst both models discriminate between candidates, the treatment of those who would be selected on one measure but not on the other is a key

issue to be resolved. Also, should station profile play any part in the selection process? Whilst we approve of the general principle of parsimony, ie keeping things simple, we feel that the additional information given by the triangulation of assessment data is both significant and useful.

Take-home messages: As with OSCE stations, basing high level decisions on a single measure or score is not advisable.

4L/4

The utility of Multi Faceted Rasch Modelling to evaluate applicant ability, examiner severity and consistency, and item difficulty in high stakes multiple mini interview for selection into graduate entry medicine

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Background: In overcoming recognized limitations of Generalisability Theory, Multi-Faceted Rasch Modelling (MFRM) provides individual metrics of student ability, examiner severity, and item difficulty, independently of the sample undertaking the assessment. We report an example applied to a high stakes Multiple-Mini-Interview (MMI) for selection into graduate entry medicine

Summary of work: 705 Applicants, 179 interviewers and 33 MMI questions were organized into 24 circuits of 5 stations. MFRM was applied to the data to investigate whether the assessment could be considered to target a unidimensional construct, if interviewers demonstrated significantly different levels of severity, and if circuits of questions could be considered equivalent in terms of difficulty.

Summary of results: The MMI measured a unidimensional construct, and candidate ability was the largest single contributor to total scores, contributing 30% variation between scores. There was a significant difference in the levels of interviewer severity ($p<0.05$). There was no significant difference in difficulty between circuits. The impact on the rank list of applicants is demonstrated, where MMI scores for the severity of the interviewer have been adjusted.

Conclusions: MFRM extends the understanding of the psychometrics of observed performances in medical education.

Take-home messages: MFRM is a useful approach to advancing knowledge about observed performance assessments and provides a metric, which educators could use to adjust candidate scores for construct irrelevant variance such as examiner severity. Further work needs to be undertaken to establish the validity of the single construct measured by the MMI.

4M Short Communications: Virtual Patients

Location: Club D, PCC

4M/1
Research in the Gamification of Medical Education

Adrian Raudaschl (Greater Glasgow and Clyde, Medicine, Glasgow, United Kingdom)

Background: Gamification of medical education aims to apply the underlying principles that make games engaging and enjoyable to a test based format. Cognitive psychology has shown repeated testing of information promotes better retention and comprehension of information. I identified game design elements such as attractive interfaces, scoring systems, awards, story narrative, short and long term feedback, dynamic objectives and competition with the aim to encourage repeated voluntary testing of information.
Summary of work: We designed a range of interactive virtual patient cases for the iPhone platform in collaboration with Glasgow Medical School. A series of multiple choice questions (MCQ's) were then derived from main learning objectives (e.g. investigations, treatments). Cases would gradually progress from presentation to their therapeutic conclusions; the aim to teach medical knowledge and demonstrate its direct clinical application.
Summary of results: The format was similar to that of an interactive video game. Our first application 'Ward Round' has been rated highly and downloaded over 1,300 times. For our app 'Microbiology", feedback from 51 students showed the app helped increase their knowledge of microbiology and 73% felt using the app was a good use of study time.
Conclusions: Students have highly rated our gamification approach to medical education and find it a useful resource. This project has added value to our current medical school module on microbiology, and opens opportunities to introduce similar applications to other areas of the curriculum.
Take-home messages: Use of smart phones in medical education is an exciting new field, and the opportunities for innovative application are just starting to begin.

4M/2
Expectations and experiences of the collaborative aspect of virtual patient work

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Background: The small group setting has proved beneficial for learning (Lou et al., 2001). Furthermore, the reasoning process is a goal in itself within an interpersonal view of learning (Crook, 2010). In medical education the use of virtual patients (VPs) has emerged as a method to train clinical reasoning which implies an increased interest for peer collaboration. The VPs are however often used individually in a self-study manner. One study reports 94% individual use (Fall et al., 2005). The aim of this study is to gain knowledge about how students perceive collaboration using VPs and the reasons for individual or collaborative VP work.
Summary of work: Students worked with four VPs during clinical clerkship in Rheumatology. All students during one semester (n=30) were asked to fill in a questionnaire concerning collaborative VP work. Questionnaire responses were analysed thematically (Braun and Clarke, 2006).
Summary of results: Twenty-nine students (97%) answered the questionnaire. 62% of the students worked individually with the virtual patients, 24% both individually and collaboratively, and 14% only in the collaborative setting. All of those working in the collaboratively stated learning reasons for doing so. Almost all (94%) of the reasons for working individually were of practical character. Those working in both settings stated both practical and learning reasons for doing so.
Conclusions: Students clearly see educational benefits of working collaboratively with VPs. However, for practical reasons collaborative case work seems often to give way to the individual self-study approach.
Take-home messages: Practical opportunities should be arranged for in order to benefit from collaborative learning when using VPs.

4M/3
Can virtual patients be shared internationally?

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David McCarthy (Queen's University Belfast, Centre for Medical Education (student), Belfast, United Kingdom)
Richard Plumb (Queen's University Belfast, Centre for Medical Education, Belfast)
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Background: The Medical schools at Queens University Belfast and University of Tampere piloted the sharing of Virtual Patient (VP) material.
Summary of work: Two VPs authored by the teachers in Belfast were used as revision material in an integrated PBL block dealing with infectious diseases in Tampere. The VPs were created using Riverside software shared by members of the International Virtual medical School (IVIMEDS). The VPs consisted of descriptions of patient cases, multimedia commentary, multiple choice and open questions with immediate feed-back and scoring.

Five VPs were reviewed in Tampere in relation to the block and two immediately matched specific curricular objectives. Minimal editing was required consisting of altering the terms of medical practices to meet Finnish circumstances, changing the linked guidelines to local ones and also changing a small amount of text, two MCQs and three open questions. This was easily accomplished using Riverside.

Summary of results: The VPs were published in Moodle VLE during the last week of the block as optional study resources. Students were asked to optionally return the completed VPs as PDFs. According to log-in data 59 students out of 98 used the VPs, Fourteen PDFs were returned. Students were very positive about the Belfast VPs in their regular online feedback forms. The content was regarded as interesting and the questions with synchronous feedback suitably challenging.

Conclusions: Although sharing was not considered during design, the VPs were easily adapted. This process could be even more straight forward with advance planning.

Take-home messages: Sharing of eLearning materials internationally is very feasible.

4M/4
The Generation 4.5 Project: Using Ethical Virtual Patients in Teaching

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Background: Use of Virtual Patients (VP) is well established in medical education. They improve clinical reasoning, decision making skills and knowledge retention through engaging and interactive learning experiences. The St George's team devised the world's first Ethical Virtual Patient (EVP) cases with JISC support.

Summary of work: 5 EVP cases were placed on a secure website and sent to the 20 participating medical schools with links to student and staff evaluation questionnaires. Open and closed questions were used. Questionnaire data was complemented by focus group interviews at selected schools.

Summary of results: The evaluation occurred between 1st May 2012-1st May 2013. Initial data suggests EVP cases are popular with students who find them engaging, stimulating and interesting. These findings corroborate previous work (Ref). Staff found EVPs easy to use and useful for contextualising teaching.

Conclusions: VPs have been used in medical education to good effect for many years. Surprisingly EVPs have not previously been used to improve medical ethics teaching. Our multi-site data suggests that EVPs can be utilised to improve ethics teaching by: (1) promoting student interaction; (2) consideration of alternative arguments; (3) role play decisions in a safe environment.

Take-home messages: EVPs represent a new and potentially game-changing pedagogical tool for those who teach ethics, law, and professionalism to medical students. Our research suggests that students and staff find EVPs stimulating and useful: they enable students to test out ethical decision making.

4M/5
Exploring the validity and reliability of a questionnaire for evaluating virtual patient design with a special emphasis on fostering clinical reasoning

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Diana Dolmans (Maastricht University, Department of Educational Development and Research, Maastricht, Netherlands)

Background: The design of Virtual Patients (VPs) is essential. So far there are no validated evaluation instruments for VP design published.

Summary of work: We examined three sources of validity evidence of an instrument to be filled out by students aimed at measuring the quality of VPs with a special emphasis on fostering clinical reasoning: (1) Content was examined based on theory of clinical reasoning and an international VP expert team. (2) Response process was explored in think aloud pilot studies with students and content analysis of free text questions accompanying each item of the instrument. (3) Internal structure was assessed by confirmatory factor analysis (CFA) using 2547 student evaluations and reliability was examined utilizing generalizability analysis.

Summary of results: Content analysis was supported by theory underlying Gruppen and Frohna's clinical reasoning model on which the instrument is based and an international VP expert team. The pilot study and analysis of free text comments supported the validity of the instrument. The CFA indicated that a three factor model comprising 6 items showed a good fit with the data. Alpha coefficients per factor were 0,74 - 0,82. The findings of the generalizability studies indicated that 40-

200 student responses are needed in order to obtain reliable data on one VP.

Conclusions: The described instrument has the potential to provide faculty with reliable and valid information about VP design.

Take-home messages: We present a short instrument which can be of help in evaluating the design of VPs.

4M/6

The development of a virtual city for the environment of a Primary Health Care Course in the Amazonian region

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Background: The post-graduation course in Family's Health of the UNA-SUS/UFCSPA, developed in the modality of distance education, uses a virtual city where there are complex clinical cases that describe ordinary situations in the primary health care (PHC) in the Brazilian Amazon.

Summary of work: In order to adjust the course to the professionals who work in the Brazilian Amazon, it was necessary to develop an Amazonian virtual city that matched the regional endemic specificities. For the creation and development of a Muiraquitan virtual city, a multidisciplinary team was composed in order to guide the work. The conception of the city, started with a meeting on the Pará's state, which belongs to the Amazonian region, bringing together the UFCSPA. In this phase, it was possible to make an initial recognition of the area, the habits and the needs of the population, as well as the perspectives of the local professionals.

Summary of results: The social, demographic and geographic characteristics of the Amazonian virtual city were defined in order to adapt to a new environment six new clinical complex cases that describe ordinary endemic situation, considering the primary health care of that region.

Conclusions: The virtual city brought near the complex cases and the cultural, social and economic reality of the Amazon and allowed simulation of the endemic situations that the students face in their practice in the PHC.

Take-home messages: The creation of a fictitious Amazonian city is an advance for the qualification of the course offered to the health professionals in a region that offers little training in this area.

4N Short Communications: Learning Online

Location: Meeting Room 2.1, PCC

4N/1
The whacky in the wiki - supporting online tutors

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Background: In recent years there has been a significant shift to online provision within medical education courses, however, little attention has been given to the support that online tutors and facilitators require. Access to support in this role is crucial as online tutors are often geographically distant to the host university. On the e-postgraduate certificate, diploma and MSc in medical education at Cardiff UK, online tutors are supported through the use of a staff wiki to enable them to share ideas and strategies and also gain support and advice from peers. A wiki is an online collaborative tool that allows individuals to discuss, build and share content in an online environment.
Summary of work: A new wiki is created each week during term time but online tutor use of the wiki in our setting has varied substantially with the reasons for this not being evident. This, therefore, became the focus for this particular investigation. The quantity, type and content of posts were analysed for each wiki during a four year period. Online tutors were also surveyed via questionnaires about their perception of the wiki, patterns of use and perceived benefits and difficulties.
Summary of results: The key findings indicate that particular types of posts can have an inhibitive effect on other tutors participation in, and benefits from the wiki. In some instances this led to tutors disengagement with this online tool and, to a lesser extent, their contributions with students on the programme.
Conclusions: Reasons for these particular type of posts are suggested and this exemplifies the need for ground rules and illustrates key pointers to be included.
Take-home messages: Wikis can provide powerful support for online tutors but have the potential to undermine and inhibit contributions.

4N/2
Effects of moderated and non-moderated online courses on student success

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Background: Many previous studies showed that proper use of educational technology may improve performance of medical students. On the other side there is tendency to use "online courses" only as ordinary repositories of digital educational content with low level of interactions. The aim of this study is to investigate the performances in three groups of students who attended blended moderated, blended non-moderated and traditional course on histology.
Summary of work: 589 first year medical students were randomly assigned to attend 3 types of histology course: classic (C; n=174 students), non-moderated blended course (N; n=190) and blended online course on histology (M; n=213). Online activities (lessons, quizzes and forums) were facilitated by moderators (teacher and teaching assistant) only in moderated course. Non-moderated course didn't have forums and that was main difference between N and M group. At the end of first semester all three groups took quiz composed of 30 multiple choice questions. Collected data were statistically analyzed using Kruskal-Wallis test.
Summary of results: Average number of points on the quiz in K group was $11,60 \pm 4.12$, in N group $12,56 \pm 4.34$ and in M group $14,12 \pm 5.18$. Statistical analyses showed no differences between K and N group. On the other side students in M group showed statistically better results ($p<0.01$) than two other groups.
Conclusions: Students who have attended a moderated blended course on histology have a higher level of knowledge retention, than students who attended classical and non-moderated online course.
Take-home messages: Creating and moderating interaction in online courses is the essence of rich educational experience.

4N/3
Participants' Perceptions of a Massive Open Online Course

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Background: As their name suggest, MOOCs are open online courses that typically attract tens of thousands of participants, hence the word massive in their title. MOOCs are designed to be student-led with little input from the educator other than the provision of the learning materials. They are based on building connections, collaborations and resources between participants. There is limited information available on participants' perceptions of MOOCs. This study examined the perceptions of a group of participants registered on a MOOC in equine nutrition.

Summary of work: A self-completion survey was designed to assess participants' perception of participating in a MOOC. There were 24,000 participants registered on the MOOC, which ran for a period of 5 weeks. A series of Likert scale questions were organised to gather students' perceptions of participating in the MOOC.

Summary of results: Ninety percent of respondents rated their overall MOOC experience as either excellent or very good, with many aspects of their MOOC either meeting or exceeding their expectations. The majority of participants also rated the MOOC learning materials as either excellent or very good. A substantially lower number (50 percent) of respondents rated the discussion fora as either excellent or very good, with even fewer (40 percent) rating their interactions with other participants on the course as excellent or very good.

Conclusions: Participants on this course rated the learning materials and overall MOOC experience very highly; however, further work is required to elucidate why a much lower percentage of participants held the interactions in less regard.

Take-home messages: This massive open online course was rated highly by the participants in terms of learning materials and content; however, peer interactions were considered to be less effective.

4N/4

An online case repository facilitates radiology residency training and evaluation of education theory, can potentially shorten duration of training, and aid mastery training - a follow up report

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Background: Arguably one of the greatest challenges for residency directors is ensuring consistency of clinical experience. It could also be argued that clinical expertise is based on a foundation of clinical case experience - both the variety and range of cases, and depth of case experience.

Summary of work: Digital case repositories have a role in facilitating radiology residency training by providing an accessible, reusable, hyperlinked collection of clinical cases that mirror the full spectrum of clinical experience - from typical to atypical presentations, with confounding features, and multiple pathologies. We have organized our neuroradiology residency curriculum into thematic experiences, which are reflected in a defined collection of online cases over the last 2 years. These cases are presented via an online blog thematically, as unknown cases for quiz and drill exercises, and as a hyperlinked index for self-study.

Summary of results: Our online neuroradiology case repository contains over 2000 cases, which reflect the breadth and depth of clinical experience for the most common, and less common but important conditions. This has been viewed over 25000 times in the last 2 years, with positive qualitative feedback. Quantitative testing using compare and contrast practice has shown the potential of using this online case repository to reduce residency duration. Evaluation of educational theory, and its application to improve the efficiency and effectiveness of training; and mastery training is facilitated by the availability of this online case repository.

Conclusions: An online case repository facilitates radiology residency training and evaluation of education theory, can potentially shorten duration of training, and aid mastery training.

Take-home messages: An online case repository facilitates radiology residency training and evaluation of education theory, can potentially shorten duration of training, and aid mastery training.

4N/5

The Evolution of a web based Distance Learning framework for vascular surgery - the first four years 2009-12

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J Beard (European Society for Vascular Surgery, Education & Training Committee)

Background: An official e-learning website was authorized by the Education & Training Committee of the European Society for Vascular Surgery in 2008. vasculareducation.com was established in 2009 and further developed based on findings from an online needs analysis study among vascular surgeons and trainees in Europe.

Summary of work: We aimed to pioneer web-based learning methods to help European vascular surgeons achieve and maintain clinical competence.

Summary of results: Over the past four years, vasculareducation.com has developed peer reviewed

multiple choice questions, blended learning modules to complement hands-on training workshops, online selections of European Society Annual Congress presentations, a collection of vascular surgical educational videos, an interactive online calendar of global vascular surgical events and an interactive instructional course in the use of OsiriX for 3D reconstruction of CT angiograms.

Conclusions: The establishment of online resources for vascular surgeons is feasible and can be implemented successfully by full time clinicians and trainees.

Take-home messages: The European Working Time Directive presently limits doctors to a 40 to 50-hour working week. The skills and knowledge that trainees must acquire has increased exponentially during this period, particularly in endovascular methods. This paradox has necessitates the application of new methods of learning to maintain clinical standards in vascular surgery.

4N/6
Database of medical images for development of teaching materials

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Background: A university with a focus on health care area generates a huge amount of images monthly that cannot be discarded, but must be fully exploited and made available for the use of teachers and students. In this regard, we have about 20,000 slides that are at risk of loss and damage.

Summary of work: This study presents the development of a system for storing and retrieving images using a Web-based platform in order to preserve the images and study cases, providing reusability, interoperability, modularity and ease for teachers and students of the institution. We developed a storage system and retrieval of images called SIAP (Anatomopathological System Images). The system allows the storage of images of slides, exams, X-rays, tomographies, magnetic resonance, etc, and movies.

Summary of results: Currently there are about 6,000 recovered slides images, properly classified and registered in the system. The prototype is being developed that includes algorithms such as adjusting brightness and contrast, binarization, and segmentation of region to highlight the regions of interest. Still, we developed a link to a PACs, enabling the use of Dicom images. Moreover, there are simulators like Virtual

patient (SIACC) that use stock photos for construction of clinical cases.

Conclusions: The system is in use by teachers in various areas such as pathology, colorectal, nephrology, etc. Based on more than one year of use of the system, adjustments are being made in order to get better control of data security, ease of use, information retrieval and integration with the PACs.

4O Workshop: Teaching Professionalism: Supporting the Development of a Professional Identity
Location: Meeting Room 3.5, PCC

Richard L Cruess (McGill University, Center for Medical Education, 1110 Pine Ave. W., Montréal H3A 1A3, Canada)
Sylvia R Cruess (McGill University, Center for Medical Education, Montréal, Canada)
Linda Snell (McGill University, Center for Medical Education, Montréal, Canada)
Yvonne Steinert (McGill University, Center for Medical Education, Montréal, Canada)

Background: The approach to teaching medical professionalism has shifted because of the realization that the core issue is the development of a professional identity. It is proposed that teachers and learners must understand the nature of professional identity, the process through which this identity is developed by students and residents, and the factors which can positively or negatively Influence this evolving process. Individuals enter each phase of the journey from layperson to professional with an established identity that they must themselves alter as they successively become medical students, postgraduate trainees, and practitioners. This occurs through socialization and involves both compromise and negotiation on the part of learners, activities that can generate stress. It must also be recognized that the nature of the desired professional identity has changed as physicians are required to function in teams and be more accountable to society.
Intended outcomes: After the workshop, participants will be able to: describe the process of identity formation and socialization; factors that influence the process; and determine how and where the processes can be altered in order to assist learners in the development of their professional identities
Structure of workshop: The literature will be briefly reviewed; a schematic representation of professional identity formation and socialization will be presented to assist participants in determining where it is possible to intervene to facilitate the process and in developing a plan for their own milieu. Small and large group discussions will be used to promote reflection and exchange.
Who should attend: Program directors, clinical teachers, faculty developers, and residents interested in teaching.
Level: Intermediate

4P Workshop: Using the experience of others to manage the setting up of new medical schools or courses
Location: Meeting Room 4.1, PCC

John Cookson (Hull York Medical School, Centre for Education Development, HYMS, University of York, York YO10 5DD, United Kingdom)
David Pearson (Hull York Medical School, Centre for Education Development, York, United Kingdom)
Peter McCrorie (St George's Medical School, Medical Education, London, United Kingdom)

Background: Not many set up a new medical school or course so they usually do it only once. Thus most have no previous experience to guide them. This workshop will help to share that experience. It is not concerned primarily with academic content (driven by community needs) but with the structure of the course and school and its relationships with stakeholders.
Intended outcomes: Participants will have a greater understanding of the management issues in a new course or school and how experience elsewhere can assist in their resolution.
Structure of workshop: The workshop will use short plenary sessions at the start and finish with a small group format in between to discuss and share experience setting up new schools or courses.
Facilitators will present a 'Menu' of issues to include:
Identification of priorities for immediate attention
Relationships with parent universities and co-ordination between university and health services
Agreement of shared aims, ethos and pedagogy
Attribution of 'ownership' of the course,
Establishing sufficient facilities including appointing the right staff
Assessment and constructive alignment
Research and communication issues.
Participants will select a small number to debate and share experience in groups. Each group will then feedback in a plenary session.
Who should attend: Those with responsibility for setting up new schools/courses and those starting work in them. They may have adapted the experience of others to their own situation.
Level: Advanced

4Q Workshop: ASPIRE: Excellence in Medical Education

Location: Meeting Room 4.2, PCC

David Wilkinson (Australia)
Trudie Roberts (University of Leeds, United Kingdom)

Background: Most medical schools in the developed world are under regular accreditation by national and/or regional accreditation bodies. The need has been expressed for another form of quality assurance and enhancement, recognising excellence, that rightly falls outside the formal accreditation process, and is the remit of professional education bodies. There is currently no mechanism at a global level for a professional peer review of excellence in medical education.

Intended outcomes: Raise awareness about this new global recognition program Brief medical schools interested in submitting an application for ASPIRE recognition Expand and improve an understanding about what excellence in medical education entails

Structure: ASPIRE background and development What is 'excellence' in medical education, and how is ASPIRE different from accreditation? Details about the 3 initial areas selected for consideration:• Assessment • Student engagement • Social accountability and responsibility Facilitated group discussion ASPIRE process and timelines.

Who should attend: Representative of any medical school seeking to be among the first to achieve recognition for excellence in medical education.

Level of workshop: Beginner.

4R Workshop: Continuing Medical Education and Professional Development: Designing Effective Short Courses with Measurable Outcomes

Location: Meeting Room 2.2, PCC

Jocelyn Lockyer (University of Calgary, Dean's Office - Education, 3380 Hospital Dr NW, Calgary T2N 4Z6, Canada)
Joan Sargeant (Dalhousie University, Division of Medical Education, Halifax, Canada)
Karen Mann (Dalhousie University, Division of Medical Education, Halifax, Canada)
Lara Cooke (University of Calgary, Continuing Medical Education and Professional Development, Calgary, Canada)

Background: Systematic reviews of the literature demonstrate that short CME courses can result in changes to physician knowledge, skills, attitudes, and, if they are well designed, to physician behavior and potentially, patient and community outcomes. Specifically, CME and PD activities which include interactive components, multiple exposures, and require less complex behavioural changes appear to have the greatest likelihood of success. This workshop will explore the critical design elements needed for good outcomes and discuss approaches used to evaluate educational outcomes.

Intended outcomes: Following the workshop, participants will be able to (1) describe the CME and PD outcome literature as synthesized from systematic reviews, (2) identify approaches for determining the impact of an intervention or activity, (3) discuss their approaches to curriculum design and outcome measurement, (4) identify and plan for 2-3 techniques they intend to adopt to enhance their work.

Structure of workshop: The workshop will model best practices in CME and PD short courses. We will begin with a case-based exercise and discussion in small groups. Brief presentations will follow about curriculum design, the CME and PD outcomes literature, selection of outcomes and approaches to measurement. Participants will then discuss the various approaches they might take to measuring 'planned' outcomes, using their own or provided examples. The final activity will involve both small and large group discussion of a case. Following a summary of the key content and discussion, participants will complete a 'commitment to change' questionnaire to identify the changes that they plan on return to their workplace.

Who should attend: Current and future CME and PD providers, designers and evaluators.

Level: Intermediate

4S Workshop: Improving Clinical Reasoning Skills Using Simulation
Location: Meeting Room 3.1, PCC

James McGee (University of Pittsburgh School of Medicine, Laboratory for Educational Technology, Pittsburgh, United States)
Nancy Posel (McGill University, McGill Molson Medical Informatics, Montreal, Canada)
David Fleiszer (McGill University, McGill Molson Medical Informatics, Montreal, Canada)

Background: Clinical reasoning skills are critical to competency-based practice (Cook & Triola, 2009). Diverse theoretical frameworks, learning environments, and strategies have been proposed to support the development of clinical reasoning (Andersen, 2012; Bowen, 2006; Kassirer, 2010). One relatively new approach is using virtual patient (VP) simulation cases. These present an opportunity to actively engage learners; provide for critical analysis; encourage pattern recognition through deliberate practice; and allow immediate, continuous feedback - all features integral to the development of clinical reasoning skills (Bowen, 2006). This workshop will examine existing strategies for teaching clinical reasoning and provide participants with 'hands-on' opportunities to apply these to VPs.
Intended outcomes: Participants will: Review theoretical frameworks and associated strategies to support teaching and assessment of clinical reasoning skills; Explore how these strategies can be integrated within VP cases; Apply these strategies to an example VP case; Present and discuss their results
Structure of workshop:
Introduction (30 minutes) - A short interactive plenary will provide an overview of clinical reasoning and suggested teaching strategies, followed by examples of their direct application within VP cases; Hands-on exercise (25 minutes) - Participants in facilitated small groups will integrate and apply clinical reasoning strategies to an example VP case; Group Presentations (25 minutes) - Representatives from the small groups will present and discuss their work; Wrap-up (10 minutes) - The whole group will discuss how VP cases can support knowledge transfer, acquisition, application and assessment of clinical reasoning skills.
Who should attend: Educators interested in exploring how simulation in general, and VP cases specifically, can help support the development of clinical reasoning skills in their learners.
Level: Introductory

4T Workshop: Using "Appreciative Inquiry" to address Change Anxieties
Location: Meeting Room 3.2, PCC

M Brownell Anderson (NBME, International Programs, 3750 Market Street, Philadelphia 19104, United States)
Hossam Hamdy (University of Sharjah College of Medicine, Sharjah, United Arab Emirates)
Manuel Joao Costa (University of Minho, Medical Education, Minho, Portugal)

Background: Medical education is at the vortex of internal and external forces driving change. These forces extend from reports issued recently (Educating Physicians) and technology/team based instructional and assessment strategies to changes in postgraduate education to physicians in practice and maintenance of certification, all while health care systems/delivery models change as well.   "Change anxiety" can be expressed in multiple ways from silence to "yes, but…" to asserting one was "never involved or told". Looking more deeply at this anxiety in medical education requires us to consider its impact on our human resources –faculty, staff, trainees – who must learn new skills, accept the loss of old roles, and/or reframe their identities as teachers/educators/scientists/clinicians. Organizations are now addressing change from an "asset perspective", seeking to identify and analyze what is working that is associated with the change effort - the successes.   The methodology often used to elicit these assets is appreciative inquiry (AI).
At the conclusion of the workshop participants will be able to: Describe the role that "change angst" can play in impeding or /advancing change; Apply leadership skills from Kotter and others to the medical education setting; Apply the identified success features to a current change effort at their home institution; Evaluate appreciative inquiry as an approach for identifying and managing change angst.
Structure of workshop: Participants will work individually, in small groups, and in a large group using AI to identify the best strategies associated with addressing "change angst" and then apply these strategies to their home institution.
Who should attend: Anyone experiencing change - junior faculty to senior administrator
Level: Introductory

4U Workshop: Building students' engagement: The design of teaching and learning interventions
Location: Meeting Room 3.3, PCC

ADC Jaarsma (Academic Medical Centre, University of Amsterdam, Center for Evidence-Based Education, Meibergdreef 9, Amsterdam 1100 AZ, Netherlands)
JW van den Berg (Academic Medical Centre, University of Amsterdam, Center for Evidence-Based Education, Amsterdam, Netherlands)
RA Scheepers (Academic Medical Centre, University of Amsterdam, Center for Evidence-Based Education, Professional Performance, Amsterdam, Netherlands)
SS Lases (Academic Medical Centre, University of Amsterdam, Center for Evidence-Based Education, Professional Performance, Amsterdam, Netherlands)
NJJM Mastenbroek (Faculty of Veterinary Medicine, Quality improvement Veterinary Education, Utrecht, Netherlands)

Background: Engagement of students with their learning has a positive influence on their (academic) performances. Research, mostly from the domain of organizational and work psychology, has indicated several resources and motivational processes that may lead to more engaged learners and good academic and in-practice performances. This workshop aims to explore how theory on students' engagement can assist our understanding of the teaching and learning processes in medical education and what implications it may have for curriculum design.
Intended outcomes: Participants will understand the key concepts of students' engagement across the continuum from undergraduate medical students to lifelong learning medical professionals. Participants will develop a plan on how to incorporate these concepts in the design of teaching and learning interventions.
Structure of workshop: The evidence for students' engagement will be briefly presented based on the Job Demands-Resources Model. Then, in small groups the participants will analyze the teaching and learning strategies of their own setting in relation to this model and will share their ideas on potential interventions. Examples of best practices will be shared. The workshop will be highly interactive, requiring participants to use the evidence and translate it to their educational practices
Who should attend: Educators/teachers designing teaching and learning exercises and program/course directors responsible for teaching and learning in undergraduate and postgraduate medical educational domain.
Level: Intermediate

4V Workshop: Developing national assessment processes: satisfying community and regulator concerns about standards while maintaining and improving the quality of medical education systems. (reason for the change is that diversity is not a goal in itself, it is only useful if it serves a quality purpose)
Location: Room A, Holiday Inn

RB Hays (Bond University, Gold Coast, Australia)
L Schuwirth (Flinders University, Adelaide, Australia)
on behalf of Medical Deans Australia and New Zealand

Background: Many countries share a common medical education, assessment and qualifications frameworks and standards. Also in many countries there has been a recent expansion of basic medical education. In Australia, for example, there are now 20 medical schools with diverse curriculum approaches. These schools are all producing graduates who will have to provide the future medical workforce for not only the own nation, but also the global market. Many countries have no common benchmark exit assessment process and others do. In many parts of the world some observers would like a 'national board' style examination, while others argue that this would harm curriculum diversity. There is apparently no single best answer that would satisfy all countries and all situations, but there are a large number of useful considerations.
Intended outcomes: Better understanding of the potential methods for national assessment processes that share resources; Better understanding of the various factor influencing the decisions on national assessment and testing and their weights; Better understanding of how to address both 'guaranteed minimal standard' expectations and 'learning for the future' arguments;
Structure of workshop: Learning activities: (ideal for 15-25 participants); Group introductions; Brief introduction by presenters (15 minutes); Small groups of 5-6 to discuss de-identified case scenarios (45 minutes); Reporting back key points to whole group (20 minutes); Wrap up / summary of key issues (10 minutes).
Who should attend: While the topic is of particular interest currently to Australian and New Zealand medical educators, educators from other jurisdictions are particularly welcome to broaden the debate and share expertise and practice.

4W Workshop: Can I say that? Negotiating Insider/Outsider Boundaries in Critical Health Professions Education Research
Location: Room B, Holiday Inn

Saleem Razack (*McGill University, Pediatrics, 2300 Rue Tupper, C 807, Montreal H3H 1P3, Canada*)
Tina Martimianakis (*University of Toronto, Pediatrics, Toronto, Canada*)
Cynthia Whitehead (*University of Toronto, Family Medicine, Toronto, Canada*)
Ayelet Kuper (*University of Toronto, Internal Medicine, Toronto, Canada*)

Background: Health professions education research is increasingly serving as a contact zone between disparate scholarly traditions. Quantitative approaches now collide creatively with qualitative approaches, both as separate analyses of the same phenomenon of study or combined within the same study to produce mixed methods research. While objectivity is a core value of quantitative methods, considerations of subjectivity, inter-subjectivity and researcher positioning are important in the undertaking of critical qualitative research. As such, researchers' critical reflexivity into their own positioning vis-à-vis the phenomenon of study, as either within a health professions community or outside of one, becomes important in the assessment of research rigor.
Intended outcomes: The authors have designed a workshop in which participants will consider the following questions with respect to researcher positioning in critical research:
When one engages in critical work, how does one negotiate the tension between seeking to persuade an "audience" to change practices and remaining true to the critical theory used?
Is it possible to be critical with positioning that is "on the inside"?
What constitutes scholarly and rigorous research in this context?
The goal of this workshop is to create a space for health professions education critical researchers to engage in rich discussion around these questions, and to learn from each others' experiences.
Structure of workshop: Mini-plenary (15 minutes); Critical health professions education research case studies (30 minutes); Lessons learned from participants own experiences (30 minutes); Wrap-up: rigorous critical research and positioning (15 minutes)
Who should attend: Persons involved in critical health professions research
Level: Intermediate

4X Workshop: Motivational teaching practices: Choose between filling the bucket and lighting the fire
Location: Room D, Holiday Inn

Rashmi Kusurkar (*Institute for Education and Training, VU University Medical Center Amsterdam, VUmc School of Medical Sciences, Post Bus 7057, Amsterdam 1007MB, Netherlands*)
Olle ten Cate (*University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands*)
Larry Gruppen (*University of Michigan Medical School, Department of Medical Education, Ann Arbor, United States*)
Anthony Artino, Jr. (*Uniformed Services University of the Health Sciences, Bethesda, United States*)

Background: Motivation forms an essential component of the learning process and influences academic performance. Motivation is dynamic and teachers can play an important role in stimulating student motivation, both at the situational level (i.e. for a situation, e.g. a learning session) and at a contextual level (i.e. for a context, e.g. medical study). Understanding contemporary theories of motivation can help medical educators formulate practical tips on stimulating student motivation.
Intended outcomes: Participants are able to: Discuss the concept of motivation in relation to Self-determination theory (SDT), Social-cognitive theory (SCT) and Attributions and Self-theories; Formulate concrete tips for stimulating student motivation.
Structure of workshop: Introduction of organizers, workshop and participants and setting the stage for motivation -10 min.   Introduction to SDT, SCT and Attribution and self-theories - 30 min. Activity One - 20 min. Procedure: In groups of 6 participants each, 2 participants assume the role of students, two assume the role of teachers and two assume the role of moderators. Students propose the changes that can be made, teachers talk about the practical difficulties and moderators try to reach a workable solution. Each group comes up with one concrete tip for stimulating student motivation. Activity Two - 20 min. Procedure: Interactive discussion within the bigger group on the tips developed by the smaller groups. Critical reflection by the workshop presenters on the practicality of the tips. Summary, key messages and reflection - 10 min.
Who should attend: Teachers, teaching coordinators, curriculum developers, medical students.
Level: Introductory

4Y Meet The Expert: Hilliard Jason
Location: Meeting Room 4.3, PCC

Hilliard Jason (University of Colorado, Denver, USA)

As his contribution to our plenary symposium on The Medical School of the Future, Hilliard ("Hill") Jason, MD, EdD will be revealing for the first time to a public audience the thinking behind a proposed new (and new kind of) medical school. It is intended to be a multi-campus, international graduate medical school that will begin as a self-sustaining, UK-based charity, founded on the latest findings of educational and brain sciences, and optimally responsive to current and future healthcare needs. A key plan for this new school is that its dominant faculty scholarship activities will be the pursuit of systematic innovation and research in medical education. The goal is to secure endowment funds to support multi-institutional, multi-national collaboration in the pursuit of the kind of large-scale data gathering and analysis that have become increasingly important in clinical research. Hill is hoping that you will join this session to question and challenge any of the propositions he will have introduced in the Symposium, and to explore together the possibilities of future, large-scale research in medical education.

4Z Posters: Student in Difficulty/Student Support
Location: South Hall, PCC

4Z/1
Evaluation of The Maslach Burnout Inventory And Coping Styles Among Second-Year Medical Students

Fernando Villegas Alvarez (Universidad Nacional Autónoma De México, Cirugia, Circuito Interior Ciudad Universitaria. Av. Insurgentes Sur 3700, Ciudad de Mexico DF 04530, Mexico)
Rosa Maria Diaz-Romero (Universidad Tecnológica De Mexico, Coordinación De Investigación. Facultad De Odontologia, México Df, Mexico)
Manuel Alfonso Villalobos Huerta (Universidad Nacional Autónoma De Mexico, Cirugia, Mexico Df, Mexico)
Claudia Lopez- Becerra (Universidad Pedagogica Nacional-Mexico, Psicología Educativa, Mexico Df, Mexico)

Background: Burnout (B) is a term used to imply a state of exhaustion, being literally "burned out" (Gil 2005). Medical students enroll in a demanding process of academic and clinical education. Faced with stressful situations, humans develop psychological responses or reactions that are defensive and beneficial for their well-being and survival. They implement these adaptive responses in their confrontations with stressors in the environment in order to moderate the impact of stressful life events (Lazarus, Folkman 1991).
Summary of work: Objective: To measure the frequency of B and its association with Coping Styles (CS) among second-year medical students at the UNAM. Methodology: Informed consent was obtained from a sample of 300 of 1140 medical students enrolled in the Medicine School, for this descriptive, prospective, analytic study. Mean age/years 20.1 ± 1.37, 65% were females, 7% were studying and working at the same time. The Characteristic CS (Lopez, Rivera, Garcia, and Sanchez 2009) and the Maslach Burnout Inventory evaluated the presence of different components of B (Schaufell 2002).
Summary of results: Evidence for B was found in 19% of these students, being more frequent among the females, the evening students, and those who studied and worked at the same time (p≥0.05). Means for components of B were: Exhaustion 2.63 ± 1.24 (moderately high), Cynicism 1.29 ± 1.09 (moderately high), Personal Efficacy 4.30 ± 0.91 (moderately low). The predominant CS among these subjects was Planned Self-Affirmation.
Conclusions: Burnout was found in 19% of these student subjects, being more frequent among females. The main CS employed was Planned Self-Affirmation.
Take-home messages: Burnout was found in 19% of these students.

4Z/2
The use of psychoactive substances among medical students. A quantitative and qualitative research

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Maria do Rosário Ferraz Roberti (Faculdade de Medicina da Universidade Federal de Goiás, Clínica Médica, Goiânia, Brazil)
Nilce MSC Costa (Faculdade de Nutrição da Universidade Federal de Goiás, Pós-graduação, Goiânia, Brazil)

Background: The growing consumption of psychoactive substances (PAS) is of particular importance to society given the magnitude of the phenomenon and the personal and social consequences it represents. Throughout students this is associated with a more intense social life and easy access to PAS. We are pursuing the causes for the high prevalence of these substances, particularly for the medical students. In order to contribute with actions for prevention and intervention, we are researching and establishing the factors that lead to the usage of PAS, to ensure the best professional training.
Summary of work: The study is both qualitative and quantitative. A number of 180/660 medical students (1st to 6th grade) took a survey, of these, 16 participated in two focus groups.
Summary of results: Analyzing consumed alcohol, 34% of the surveyed drink 2 to 3 times per week, 47% preferred beer and 31% vodka, 57.5% take 3-4 doses each time, 5% binge drink once a week and 10,5% once a month. The most expressive testimonies of qualitative stage were: "the group's influence is the key." "If you're in a group that uses any drugs, certainly you'll have to use it to bond." "Drug use is always related with those around you."
Conclusions: Consumption of PAS has a high popularity among medical students, mainly because of the influence of the social circle.
Take-home messages: A psychological support would be important for the continued health of the student's community along with the work on prevention and assistance to users of PAS.

4Z/3
Burnout in Medical Students: A randomized multicentric study

Munique Almeida (School of Medicine of the University of São Paulo, Center for Development of Medical Education, Av. Dr. Arnaldo, 455, Av.Nossa Senhora do Ó, 423, São Paulo, Brazil)
Helena Paro (School of Medicine of the University of São Paulo, Center for Development of Medical Education, São Paulo, Brazil)
Fernanda B Mayer (School of Medicine of the University of São Paulo, Center for Development of Medical Education, São Paulo, Brazil)
Milton A Martins (School of Medicine of the University of São Paulo, Center for Development of Medical Education, São Paulo, Brazil)
Paulo SP Silveira (School of Medicine of the University of São Paulo, Center for Development of Medical Education, São Paulo, Brazil)
Patricia Tempski (School of Medicine of the University of São Paulo, Center for Development of Medical Education, São Paulo, Brazil)

Background: Burnout has been recently associated with unprofessional behavior among medical students. We aimed to assess burnout among Brazilian medical students.
Summary of work: Multi-centric study with 1,350 randomized medical students from all years of Medical School. Participants answered the Maslach Burnout Inventory (MBI) in an electronic survey platform. We compared burnout scores according to gender and year of medical school (grouped as follows: G1 – first and second years; G2 – third and fourth years; G3 – fifth and sixth years).
Summary of results: Response rate was 81.2% (n=1,350). We observed scores suggestive of burnout in 84% of students. Female students had higher emotional exhaustion (EE) scores (p<0.001). Males had higher depersonalization (DP) scores (p<0.001). G3 students had higher scores on EE, DP and personal accomplishment (PA) than G1 and G2 students (p< 0.001).
Conclusions: We observed higher exhaustion among female students and higher depersonalization among males. Depersonalization was highest in final years of Medical School.
Take-home messages: Observing higher depersonalization among students with higher personal accomplishment is intriguing. This could be explained by the "hardening of the heart" some medical educator claim to exist throughout medical school. Further studies are necessary to explore this finding.

4Z/4
Prevalence of psychological problems in Lampang medical students, 2 years follow up

Thawanrat Srichan (Lampang Medical Education Center, Psychiatry Department, Lampang Hospital, Lampang 52000, Thailand)

Background: Six years medical curriculum may cause stresses such as interpersonal relationship, coping strategies and evaluation methods. Early detection and early intervention can help medical students cope with their stressors in order to ensure good quality of their learning.
Summary of work: This descriptive study aimed to collect data from 134 medical students in clinical years between 2009-2012. Medical students with problems were followed up for two years. The problems were identified and classified. During these two years of study, there were psychological interventions.
Summary of results: Out of 134 medical students, 20 medical students (14.9%) had many problems. The problem areas were divided into interpersonal relationship, educational problems and psychiatric problems. Psychiatric problems were focused and identified. Six medical students were diagnosed and classified into anxiety disorder, depressive disorder and bipolar disorder. After two years of follow-up, only two medical students were in need of continued treatment.
Conclusions: Early detection and early intervention are very important processes in order to help and care for medical students in educational programs. Especially psychiatric problems should be attended to and followed up.
Take-home messages: Psychological problems or psychiatric issues should be evaluated regularly. Psychological interventions are a good thing that ought to be done in the future.

4Z/5
Response Style and Academic Performance: implications for student support

Pirashanthie Vivekananda-Schmidt (University of Sheffield, Medical Education, Sheffield Medical School, BeechHill Road, Sheffield S10 2RX, United Kingdom)
John Sandars (University of Leeds, Medical Education, Leeds, United Kingdom)

Background: Response style is key to how individuals effectively cope when they encounter stressful or challenging situations. Previous research suggests that individuals who score low on reflective style, but high on over - absorption or action, make less effective use of coping strategies. No previous studies in academic performance have been identified. AIM: We investigated whether student response style will predict their exam performance across academic domains.
Summary of work: One hundred and six five Sheffield medical students in years 1 and 2 participated in the study. With consent, participant scores on the validated "Reflective Activity Scale" were tested against their formative (two assessments) and summative (three assessments) grades.
Summary of results: Females scored higher on over absorption style (p<0.05) but this is not reflected in their academic performance. Students who score above the mean on reflection style are likely to score higher on their formative assessments (p<0.05) and females are likely to have higher scores on reflection. A regression

analysis was significant for scores on the reflection ($\beta=0.33$, $t=2.1$, $p<0.05$) and action ($\beta=0.45$, $t=2.8$, $p<0.05$) domains and the mean scores on summative grades. Information gathering and over-absorption styles ($r=0.44$, $p<0.05$) and the action and information gathering styles were negatively correlated ($r=0.33$, $p<0.05$).

Conclusions: Response style appears to predict academic performance. We recommend further research to better understand response styles to determine whether developing interventions to modify response style may help struggling students.

Take-home messages: Response style can be investigated using the reflective activity scale. Further research is required to better understand how to support struggling students through appropriate interventions to develop their response styles. Acknowledgements: Dr. Denise Bee, Sheffield Medical School

4Z/6
Doctors with mobility difficulties: a qualitative study of medical students' attitudes

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L Bowater (University of East Anglia, Norwich Medical School, Norwich, United Kingdom)
M Wilkinson (University of East Anglia, Norwich Medical School, Norwich, United Kingdom)

Background: In 2008, the GMC published the 'Gateways Guidance' which advised that 'disabled people make a unique contribution to patient care.' Various studies carried out previously have looked at the attitudes of a variety of societal groups towards doctors with disabilities, however no study has focussed particularly on medical students' attitudes towards doctors in with mobility difficulties.

Summary of work: Qualitative online survey of 53 medical students exploring 4 main questions: What do you think disabled doctors can bring to the profession? What difficulties might be encountered and how could these be overcome? What reasonable adjustments could be made to assist these doctors? Do you think there should be any limitations placed on these doctors? All survey results were read and coded to identify the common themes.

Summary of results: A full spectrum of responses was seen across all questions from those feeling that absolutely everything should be done to allow doctors with mobility difficulties to practice including procurement of highly specialised equipment, to those feeling that disabled doctors bring no benefits and are purely a 'fire hazard.' Overall, 36 of the 53 responses expressed largely positive views towards doctors with mobility difficulties with 6 very negative responses.

Conclusions: Medical students hold a wide range of attitudes towards doctors with mobility difficulties however there is still scope for further research in this area.

Take-home messages: Medical students express largely positive views towards the idea of doctors with mobility difficulties.

4Z/7
Preliminary investigations into a support scheme for individual students recently introduced to Manchester Medical School

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Maria Regan (University of Manchester Medical School, Manchester, United Kingdom)
Judy Stokes (Central Manchester University Hospitals NHS Foundation Trust, Anaesthetics, Manchester, United Kingdom)
Isobel P Braidman (University of Manchester Medical School, Manchester, United Kingdom)

Background: In 2009/2010, Manchester Medical School introduced "Academic Advisors", senior clinicians who provide guidance and support for individual students' professional development. After training, each Advisor was allocated 6 – 8 students whom they meet at least 4x per year. This preliminary study focuses on introducing Advisors to Year 3 at one of four teaching bases.

Summary of work: Aim: To understand students' perceptions of the scheme and whether Advisors fulfilled their needs. Method: Survey (9 closed-ended and one open-ended question) distributed electronically to Year 3 and 4 medical students in 2011 and 2012. Analysis: Quantitative data using descriptive statistics; free text comments analysed thematically by two independent reviewers.

Summary of results: In all, 147 surveys were completed, (28% response). Overall 67% of respondents felt their Academic Advisors supported them well and a positive attitude as key. Some expressed concerns over consistency of support, and some Advisors were unclear over their roles; 25% thought that Advisors had not met their objectives. Students expected more support over careers and job applications.

Conclusions: Overall, students want the scheme to continue and indicated the importance of student-centred interactions with Advisors. Despite a low response rate, the study raised important means by which Advisors can improve that can be addressed by more extensive training and preparation.

Take-home messages: Our preliminary results show we can introduce a workable Advisor scheme to a large medical school, but student centredness and enhanced training are essential for success.

4Z/8
Combining peer assisted learning and peer mentoring

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Background: The UK General Medical Council states that all medical graduates must have skills which allow them to 'function effectively as mentors and teachers'. However, few medical schools provide formal training in these areas. A combined peer mentoring and peer assisted learning (PAL) scheme was developed to address this issue.
Summary of work: Year 4 students were given formal training in leading small group sessions and examiner technique. Revision sessions and mock OSCEs (with the trained students as assessors) were then organised for year 3 students. Year 4 students also served as mentors to year 3 students, by providing informal pastoral support and giving practical advice. Social events were organised to encourage peer support links across year groups.
Summary of results: Both sets of students gave overwhelming positive feedback about the scheme. All students involved found the mock OSCEs an extremely valuable and novel idea. Feedback highlighted the clear benefits of combining the role of mentor and PAL tutor.
Conclusions: PAL projects are an effective method of equipping medical graduates with teaching skills. Peer mentoring schemes are important support networks for students during their education. Combining the two means that the students involved develop stronger working relationships, thereby delivering even more positive results. The development of the mock OSCEs allowed year 3 students to be qualitatively critiqued by other students, and year 4 students to reflect on their own examination technique.
Take-home messages: PAL and peer mentoring schemes are both well-established as useful tools in education. It is important to remember that their roles are not mutually exclusive.

4Z/9
Building faculty networks for supporting students in health sciences

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Alwyn Louw (University of Stellenbosch, Centre for Health Professions Education, Cape Town, South Africa)

Background: Health Sciences Faculties have a moral and social obligation to produce committed and healthy professionals enabling them to fulfill societal commitments and participate in quality service delivery. Students selected into South African health science programs hail from a diverse socio-cultural background with its attendant educational and related complexities. Additionally there are growing concerns internationally of the demands placed on educators to understand the generational evolution impacting on education of the undergraduate student. The question arises whether there are formal or informal informed student support structures at the various health science faculties. Student Support staff often work in isolation, and are sometimes perceived to be a threat by either faculty or students.
Summary of work: To forge a relationship with interested colleagues at other health sciences faculties to form a network of student supporters, and to generate colloquy on student support at undergraduate level. Methodology: A workshop was held at a national conference. It consisted of discussion of a series of case studies selected from the database of students utilizing student support at one university. The outcomes of the workshop were analysed.
Summary of results: Health science educators from a diverse background and representative of various health science institutions attended the workshop. A range of support strategies targeting at either student or organizational levels of intervention were identified from the feedback.
Take-home messages: A workshop to bring together people from different institutions with a common interest in student support, can be used to generate rich discussion within the topic and serve as a platform to build useful networks.

4Z/10
Student perceptions of an accompanying program experience

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Background: Chilean medical students are at risk of stress, anxiety and depression, given the immediate transition from high school and self-imposed demands for high academic performance.
Summary of work: We developed an accompanying program using portfolios for the recording of significant events. 36 students, having completed two to four semesters, were included. Through personal interviews

at the end of each semester, students shared their significant events and their reflections. Feedback was obtained from a survey. Teachers were trained in accompaniment skills.

Summary of results: All students reported that it was a positive experience, helpful for their personal growth, useful to develop reflection habits and self-assessment. Regarding teachers, students highlighted the creation of bonds of trust in a safe environment, being heard, and recognized the concern for their welfare.

Conclusions: We show that an accompanying program for medical students can be widely accepted and perceived as a useful and helpful reflection activity and be highly valued by them, mainly because it is not a formal assessment instance. We also show that the training of teachers for a non-directive and non-judgmental approach is fundamental for the development of the safe and confidential environment required for this experience.

Take-home messages: Students highly value being accompanied by their teachers through medical school.

4Z/11

Student support initiatives in the Department of Internal Medicine

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Background: The undergraduate students perceive the fifth year Internal Medicine module as extremely difficult. Over the last few years three challenges were identified which contribute to this perception, namely a negative attitude towards the module, underlying emotional challenges and surface learning. Utilizing the process of transformative reflection, a variety of student support initiatives has been introduced by the Department to try and change these perceptions.

Summary of work: An audit of all student support initiatives taking place in the undergraduate programme of the Department of Internal Medicine was undertaken in 2011. The results of the audit will be described.

Summary of results: A departmental Education committee drives these initiatives. All the staff of the Department give their input at an annual strategic planning meeting, which focuses on teaching and learning. The Internal Medicine module has a year group tutoring system in which the tutor will have weekly meetings with the students. Staff are encouraged to get to know students. Extensive feed-back is sought from students and taken into consideration when planning any changes. Students with attitude or emotional problems are seen by the year group tutors. These students are referred to Kovsie counseling or a private psychologist. Since 2011 Internal Medicine is also part of the University's NATP programme.

Conclusions: As a result of these initiatives the general attitude of students towards Internal Medicine has improved. The support rendered contributed to the academic success of a number of students with

emotional challenges. From January 2012 the support programme has expanded.

Take-home messages: Having a structured student support programme in a clinical department is extremely beneficial.

4Z/12

Medical Students in Need: An Audit of Student Support Services at King's College London

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Stuart Knight (King's College London, School of Medicine, London, United Kingdom)

Background: King's College London (KCL) provides a variety of student support services. Medical students are divided into pre-clinical and clinical years. Students in the clinical years spend time on placements away from university campuses where support services are offered. This project aims to evaluate access and quality of support services.

Summary of work: A questionnaire was distributed to 1847 KCL medical students during February 2013.

Summary of results: We achieved a response rate of 26% (n=475). 64% of students reported needing support in 2012 whilst 32% accessed support services. The majority who accessed support (70%) reported the service they received was satisfactory. The main perceived barriers to access were time constraints (39%) and a lack of awareness of available services (31%). Clinical students were significantly more likely to report time constraints as a barrier than non-clinical students (44% vs. 32% respectively p<0.01). Additionally, 25% of students believe seeking support could possibly negatively impact their career or academic standing.

Conclusions: Although students who accessed support were satisfied with it, only half of students who reported needing support accessed it. Time constraints were the most common barrier for clinical students likely due to travelling from distant placements. Negative academic/career consequences of seeking support are a concern of many students, which could be eased by clarification from support services. Improvements in awareness and access to services are necessary to provide a high quality student support system.

Take-home messages: Due to the unique needs of medical students, substantial effort must be put into minimising barriers to access to student support services.

4Z/13

"Everything went downhill from there": Identity and perceptions of control in university transition

Wendy McMillan (University of the Western Cape, Dental Education, Faculty of Dentistry, Tygerberg Campus, Cape Town 7505, South Africa)

Background: Most students struggle with university transition. First-generation students are most vulnerable for failure. During first year, health sciences students are inducted into what it means to be a university student and health professional. Students must master both identities. People enter transitions with 'fastened' identities. Identity is 'unfastened' during engagement with new experiences. New ways of being and doing are incorporated into 'refastened' identities. Perceptions of control affect this process.

Summary of work: This qualitative pilot study examines how identity and perceptions of control affect performance. One-on-one interviews were conducted with 17 second-year dentistry students. All had participated in focus-group interviews the previous year. Questions probed student identity, perceptions of school/university differences, and the meaning of being a dentist. Interviews were transcribed. Analysis coded for 'fastening', 'unfastening', 'refastening', and perceptions of control. First year marks were accessed.

Summary of results: Students from university-orientated backgrounds (n=10) had aspects of university identity embedded within their school identity. They 'incorporated' new ways of being and doing, rather than 'unfastening'. Poor academic performance was associated with perceptions of lack of control (n=4). First-generation students (n=7) experienced dissonance between school and university ways of being and doing. Those who associated control with skills, abilities and effort (n=2) recognised this dissonance and experienced 'unfastening/refastening'. Their academic performance was better than that of students who attributed their failure to task difficulty or luck (n=5). Quotations illustrate these processes.

Conclusions: Academic preparation is not an adequate indicator of performance. Perceptions of control contribute to performance.

Take-home messages: Helping students perceive control over transition experiences might improve academic performance.

4Z/14

FIFE S.T.A.R.S (Students Taking Academic Review Sessions): A Novel Way to Enhance Clinical Skills

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Laurie Mereu (University of Alberta, Medicine and Dentistry, Edmonton, Canada)

Background: Providing preclinical medical education with adequate opportunities to practice patient interviews and physical examinations is of great importance to medical educators whilst remaining costly to medical schools. The University of Alberta (UofA) is piloting the FIFE S.T.A.R.S program, a novel student-run faculty reviewed peer-to-peer clinical learning exercise.

Summary of work: Student volunteers shadow local clinicians to generate case scenarios. The scenarios are then reviewed by faculty and used by the patients during sessions described by the following steps: (1) Groups of three students rotate through three roles; medical student, patient, and observer. (2) The medical student performs the patient interview and/or mock physical examination followed by an interactive patient follow-up exercise. (3) Oral feedback is supplied by both the patient and the observer, with the latter completing an online evaluation and grading form specific to the case scenario.

Summary of results: A survey of first year medical students showed that 72% (48/67) felt they needed more time to practice the patient interview and physical examination. Following the inaugural year of FIFE S.T.A.R.S, 97% of respondents (65/67) felt that FIFE S.T.A.R.S was a useful and effective method of integrating academic knowledge and clinical skills.

Conclusions: The input and output of preclinical and clinical education requires integration to ensure the effective transition of medical students into the workforce. Such integration has proven costly under traditional methods and FIFE S.T.A.R.S is a proven student-run faculty reviewed solution.

Take-home messages: By implementing and enhancing FIFE S.T.A.R.S, academic tutelage can be integrated with clinical skills, providing students consistent opportunities to improve their skills.

4Z/15

Teaching Clinical Examinations: What do students want?

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Gary Cross (University of Cambridge, General Medicine, Cambridge, United Kingdom)
Liam Foster (University of Cambridge, General Medicine, Cambridge, United Kingdom)

Background: It is essential that all doctors have confidence in their ability to perform clinical examinations. Many educational resources exist to assist in teaching these skills. Despite this, many newly qualified doctors lack confidence in performing a number of examinations.

Summary of work: (1) A survey of penultimate- and final-year medical students was undertaken to assess confidence in performing examination routines and the preferred teaching mediums for learning these skills (2) Based on these preferences, eLearning resources were developed and published online for student use. (3) We reflect on the ability of students and junior doctors to influence the undergraduate teaching programme.

Summary of results: (1) Confidence is high in performing cardiovascular (95%), respiratory (93%), and abdominal (94%) examinations. Confidence is lowest in performing examinations of the peripheral vascular system (36%),

spine (42%), and shoulder (43%). (2) Students preferred learning materials in the form of image collections (88%) and explanatory videos (75%) in favour of more prescriptive OSCE-style videos (30%) or written documents for each examination routine (12%). (3) Students report teaching from junior doctors and practicing on patients as the most effective intervention to increase confidence in their ability to perform clinical examinations.

Conclusions: (1) Students can effectively identify and fill gaps in their curriculum by designing new teaching materials (2) Students prefer detailed explanations of examination routines, rather than prescriptive 'how to pass the OSCE' guides. (3) Junior doctor teaching should be actively encouraged.

Take-home messages: Students and junior doctors should be encouraged to design learning resources in response to student feedback.

4Z/16
Improvement of students' understanding of complex assessment tools with adaptive comparative judgement

James Garden (University of Edinburgh, Clinical Surgery, Edinburgh, United Kingdom)
*(Presenter: **David Pier**, University of Edinburgh, Clinical Surgery, Royal Infirmary, 15 Little France Crescent, Edinburgh EH16 4SA, United Kingdom)*

Background: A reflective e-portfolio was developed to foster critical reflection and reflective practise. Submissions are categorised by core areas of clinical competency and marked on learning objectives aligned with key reflective skills. Using formative peer assessment trainees were able to judge others work using the marking criteria and receive feedback on their submissions prior to summative assessment in the hope of improving their understanding of the assessment.

Summary of work: E-portfolio entries were peer assessed using adaptive comparative judgement software. Peer feedback was also entered in to the software. An iterative and adaptive algorithm was used to scale the distribution of trainee work and provide a rank order. Anonymous peer feedback was provided to trainees. Trainees were surveyed at the end of the exercise.

Summary of results: 70% of trainees completed the survey. 90% found the peer review exercise to be helpful in their understanding of the reflective e-portfolio assessment.

Conclusions: Adaptive comparative judgement is not only a useful peer assessment tool but it was found to be important in developing an understanding of complex assessment tools.

Take-home messages: Adaptive comparative judgement is a valuable peer assessment and learning tool for complex assignments.

4Z/17
Qualitative student evaluation of preparatory material in a Team Based Learning focused medical school curriculum

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Senita Mountjoy (Imperial College London, London Office of the Lee Kong Chian School of Medicine, London, United Kingdom)
Naomi Low-Beer (Imperial College London, London Office of the Lee Kong Chian School of Medicine, London, United Kingdom)

Background: Team Based Learning (TBL) requires preparatory material which is aligned to learning outcomes. Medical students undertake both individual and group assessment based on the preparatory material and then apply that material in application exercises. Therefore we feel that medical student review is important when developing TBL preparatory material.

Summary of work: A new joint medical school in Singapore will use TBL as the primary teaching method for non-clinical teaching. During the design phase, outcomes for each TBL session were written and then preparatory content created aligned to those outcomes. Three medical students reviewed the learning outcomes and content to check alignment and applied a traffic light system of evaluation: green- no change required, amber- modification suggested, red- no content aligned to learning outcome.

Summary of results: Medical students reviewed 4 main curriculum areas in year 1: (1) Cardiorespiratory: Green 84.1%, Amber 7.5%, Red 8.4%; (2) Renal & Endocrine: Green 84.8%, Amber 9.3%, Red 5.8%; (3) Skin: Green 80.8%, Amber 15.2%, Red 4%; (4) Musculoskeletal: Green 69.1%, Amber 16.4%, Red 14.5%. Qualitative comments were also collected.

Conclusions: Medical student review contributed important information during the development of new educational material. The results were triangulated with feedback from faculty, clinicians and curriculum developers and informed the development of TBL preparation material.

Take-home messages: Medical student views are a valuable source of information for the preparation of education content in a TBL focused medical school curriculum.

4Z/18
Student Perceptions towards the Efficacy of Peer Representation at Medical School

Aaron Braddy (Barts & The London School of Medicine & Dentistry, Queen Mary, University of London, Centre for Medical Education, c/o Professor Olwyn Westwood, Garrod Building, Turner Street, London E1 2AD, United Kingdom)

Kerrie Wilson (Barts & The London School of Medicine & Dentistry, Queen Mary, University of London, Centre for Medical Education, London, United Kingdom)
Olwyn Westwood (Barts & The London School of Medicine & Dentistry, Queen Mary, University of London, Centre for Medical Education, London, United Kingdom)

Background: Peer representation is a recognised feedback mechanism at medical schools, where they act as the feedback mediators for the wider student body, presenting key issues to faculty. There appears to be no current published work on the efficacy of peer representation. This study aimed to provide an insight into student perceptions towards their use.

Summary of work: All medical students at Barts and The London were invited by email to: (i) complete an on-line questionnaire exploring their use of peer representatives and their perceptions towards their efficacy, (ii) participate in focus groups to explore key themes identified by the questionnaire. Thematic analysis of transcripts was performed following the focus groups discussions.

Summary of results: Of the 122 students who responded, 45.9% (n = 56) had contacted their student representatives. Of the remaining 66 students who had not 87.5% (n = 58) stated it was that they had "nothing to discuss". Peer representatives were mainly used to flag up   the academic issues, as an interface with the medical school to promote student advocacy. Less common issues were around "signposting for welfare and support services". The in-depth evaluation of the qualitative data derived from the focus groups is discussed.

Conclusions: There appears to be a clear evidence base on peer representation at medical schools. Preliminary data shows utilisation of them is high amongst students with academic issues and their main perceived role is student advocacy.

Take-home messages: Student representatives need to share strategies for augmenting student engagement with the peer advocacy process.

4AA Posters: Interprofessional Education 2
Location: Terrace 2, PCC

4AA/1
Interprofessional education - experiences of developing and implementing an IPE module for 10 different health education programs

Anita Iversen (University of Tromsø, Faculty of Health Sciences, Tromso, Norway)
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Arnfinn Sundsfjord (University of Tromsø, Faculty of Health Sciences, Tromso, Norway)
*(Presenter: **Nanna Hauksdottir**, University of Tromsø, Faculty of Health Sciences, MH-bygget, Breivika, Tromsø 9037, Norway)*

Background: Our aim was to prepare for and improve interprofessional skills as team work among students in all our ten health education programs to qualify for patients' needs in the future.
Summary of work: An introductory IPE-module (10 ECTS) was developed for 700 students from ten programs; medical laboratory technology, medicine, nursing, occupational therapy, odontology, dental care, pharmacy, physiotherapy, psychology and radiography. The learning outcomes were described in relation to the following themes: Scientific approach – critical thinking, information competencies, early patient contact, communication skills, ethics and the Norwegian welfare system. Learning activities included online discussions and lectures, cases, scientific literature, interprofessional seminars, and out-clinic meetings with patients were organized. The final exam for the students included two written texts. The introductory IPE module is currently under evaluation and will be further developed. A new subsequent IPE module aiming at interprofessional teamwork in the clinical settings is currently being developed.
Summary of results: The students' evaluation of the content and the learning outcomes in the module is positive, and they ask for more interprofessional meetings. There were some obstacles in the process; the logistics associated with organization of 700 students from different educational programs was intriguing, the timing of activities was more difficult than expected. Interprofessional qualifications and attitudes among mentors seem to be of importance.
Conclusions: IPE is a complex process. It will require continuous evaluation, motivation and adjustments to establish a robust IPE-culture within the faculty and among partners in the clinical setting. Systematic faculty development processes are crucial to succeed. However, the initial experiences are primarily positive among the students.

4AA/2
Learning methods and theory of Inohana IPE in Chiba University.

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Ikuko Sakai (Chiba University, School of Nursing, Chiba-shi, Japan)
Misako Miyazaki (Chiba University, School of Nursing, Chiba-shi, Japan)

Background: Chiba University began its Interprofessional Education (IPE) program in 2007 through the collaboration of three healthcare-related faculties: The School of Medicine, The School of Nursing, and The Faculty of Pharmaceutical Sciences. Seven years have passed from the start; in order to improve this program, we have re-positioned the practice using some learning theory.
Summary of work: Inohana IPE, named after the Inohana Campus in Chiba, offers a multi-level four- year structured program that is a compulsory subject for undergraduate students currently enrolled in one of the three departments. There are about 300 students per one school year. Through empirical methods in mix-groups, they learn actively while making reflections.
Summary of results: We consider the learning activities in Inohana IPE, and found learning theories that we should be strongly aware of in order to improve. Those are "Situated learning" by Lave & Wenger, "Reflective learning" by Schön, and "Experiential learning" by Kolb. Taking notice of these learning theories, we have come up with; reflection sheets, self and peer assessment, feedback, learning environment, portfolio, etc .
Conclusions: Students develop their own professional identity and interprofessional competencies through IPE program. In order to improve this program, we would like to consider a more effective method of learning in the future.

4AA/3
Promoting careers in medical research via inter-professional student led initiatives

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Background: Despite the University of Manchester's large research profile, there are few outlets directed specifically at students that showcase research and promote careers in academia. Due to this, and the well-recognised decline of Academic Medicine in the UK, The Manchester Medical Research Student Society (MMRSoc) was established.

Summary of work: MMRSoc is led by a team of fifteen students with representatives from across two faculties. It aims to foster a research culture amongst students and improve research related opportunities. Some initiatives include: inspirational lectures encouraging students to consider a research career, educational lectures and workshops that equip students with the skills needed to build a research portfolio, and the development of a 'Research Placement Database'. Initiatives have been evaluated using questionnaires.

Summary of results: Within 6 months MMRSoc has garnered over 450 members. Educational lectures were attended by an average of 132 students. Lectures that aimed to inspire were attended by an average of 94 students, and feedback has shown that 96% of attendees felt more inspired to pursue research careers. Currently 83 potential placements have been confirmed for The 'Research Placement Database'. MMRSoc has also encouraged changes in the Medical School curriculum and has established itself as part of Manchester's research network.

Conclusions: We have demonstrated that student societies can foster interest in medical research. On account of effective teamwork, management, and publicity, MMRSoc has successfully raised awareness of and promoted medical research.

Take-home messages: Student societies are a useful tool in reversing the decline of Academic Medicine. As medical research is multidisciplinary, initiatives should encourage inter-professional student participation.

4AA/4
Analysis of an Integrated Inter-professional Education Model for Care Ethics through Formal Curriculum and Hidden Curriculum

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Background: For health care professionals, caring has been regarded as one of the core virtues and usually cultivated on a relationship basis. The goal of this action research is to examine care ethics education for students in various disciplines of health professions. We took an approach that combines methodology from history, sociology and adult learning theory to explore the enculturation of caring in formal curriculum and hidden curriculum. Besides, this action research emphasizes inter-professional education and we ad teamed up faculties from different backgrounds and also fostered interaction among students from different disciplines.

Summary of work: We selected core courses for general education, basic science courses and clinical courses that were required for students of medical, nursing and rehabilitation departments from a university in Taiwan. Through content analysis on curriculum design, direct observation on classroom teaching, service learning and clinical rotation, we selected key elements for enculturation of caring.

Summary of results: A total of 294 undergraduate students were enrolled to evaluate their perception of these courses and were measured using a scale of caring. Students reported that team work in the field, small group discussions with patients and family members and videotaping to foster reflection showed the highest effectiveness. We also found that two operational indicators namely "acceptance of peer assistance" and "influence of peer learning" can be added.

Conclusions: We recommend that curriculum design for education on caring should include interactive learning from peers and patients, and methods that foster natural communication and reflection among students.

Take-home messages: Education on care ethics can be effectively implemented in an inter-professional model.

4AA/5
The "Safe Discharge Challenge" – Orienting to the Multidisciplinary Team by Doing

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MS Sheppard (Saskatoon Health Region Saskatoon, Canada)
HA Ward (University of Saskatchewan, Division of General Internal Medicine, Saskatoon, Canada)
(Presenter: SE Card, University of Saskatchewan, Division of General Internal Medicine, Royal University Hospital, 103 Hospital Drive, Saskatoon S7K 4Y3, Canada)

Background: Methods to teach key collaborative competencies (including communicating and becoming familiar with roles of other health care professionals (HCP)) early in postgraduate internal medicine (IM) training are unclear.

Summary of work: As part of the first year IM postgraduate orientation, a brief introduction to a team communication strategy (SBAR- situation, background, assessment, recommendation) was provided prior to initiating an interactive case-based "safe discharge challenge". Teams of IM residents were tasked to discharge a virtual paper-based patient and to work with other HCP in achieving a safe discharge. "Offices" where HCP could be consulted at the request of each resident team were created. If communication and collaboration with the HCP was clear and appropriate recommendations were quickly obtained. The goal was to be the first resident team to have all patient

discharge needs addressed. Satisfaction with the educational session and usefulness of SBAR was assessed by the residents.

Summary of results: The session was rated as very valuable by the IM residents (mean 4.3 (5 point Likert scale)). All IM respondents indicated that the session should be continued in the future. 15/24 (63 %) found the SBAR technique very useful and 8/24 (33 %) somewhat useful for communicating with other HCP. Satisfaction was improved from the previous year's didactic session (mean 3.3 (5 point Likert scale)).

Conclusions: IM residents perceive an interactive case-based session with other HCP as a valuable method for learning basic collaboration competencies including the use of communication techniques (SBAR) for interprofessional communication.

Take-home messages: Interactive, goal based collaboration teaching improves learner satisfaction.

4AA/6
Perceptions of the pharmacist's role and professional development needs in the era of expanding scopes of practice

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Jason Daniels (University of Alberta, Faculty of Extension, Edmonton, Canada)
Nese Yuksel (University of Alberta, Faculty of Pharmacy & Pharmaceutical Sciences, Edmonton, Canada)
Rene Breault (University of Alberta, Faculty of Pharmacy & Pharmaceutical Sciences, Edmonton, Canada)

Background: Pharmacy practice has been shifting towards collaborative and patient-centered care. Researchers have underscored the importance of education and training, and understanding professional roles in change efforts. We investigated how pharmacy students, pharmacists, and allied health professionals perceived the pharmacist's role in the changing Canadian health care environment as well as professional development needs.

Summary of work: We invited pharmacy students, pharmacists, and allied health professionals to participate in focus group interviews using convenience sampling. Questions were semi-structured in nature; interviews were recorded and transcribed verbatim. Data was coded and analyzed for themes using a constant comparison technique.

Summary of results: Three focus groups interviews have been conducted with pharmacists (n=8), pharmacy students (n=8), and allied health professionals (n=7). In all 3 focus groups, pharmacists were identified as drug therapy experts, however the need for a strong professional identity and consistency in practice were noted. Collaboration with physicians and other professionals were viewed as integral to support the

pharmacist's expanded role and improve delivery of patient care. The need for additional training in patient assessment was deemed important.

Conclusions: Our data suggests that while pharmacists and allied team members view the role of the pharmacist as drug therapy expert, inconsistencies in practice and training impede widespread recognition of this role.

Take-home messages: Increased professional training (in practice settings) may facilitate pharmacists' understanding, ability and confidence to take on expanded roles. Expanding opportunities for interprofessional education may enhance understanding of professional's roles and ability to delivery care in a collaborative environment.

4AA/7
Using reflective learning to engage primary care practitioners in interprofessional collaboration

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Michel Camirand (CSSS de la Pommeraie, Cowansville, Quebec, Canada)
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Claude Guimond (Fédération des médecins omnipraticiens du Québec)

Background: Optimizing the ability of professionals to collaborate to deliver care in line with the precepts of the Chronic Care Model remains a challenge. Interprofessional education (IPE) approaches, based on the development of reflection and professionalism, should be used to support clinicians in this transformation. In 2009, a new IPE intervention, based on reflective learning, was developed in Quebec's Montérégie region (Canada). The objective of this presentation is to describe the theory underlying this intervention, its components and the assessment of its acceptability.

Summary of work: This IPE intervention consists of a three-hour workshop led by two facilitators: a physician, a nurse or a pharmacist. It is composed of three main activities: feedback, reflection, and action planning. Six workshops were observed to assess the plausibility of the program theory. Data were collected on the characteristics of the educational process, group dynamics, level of interprofessional exchange, facilitation process, workshop's impact and participants' satisfaction.

Summary of results: The workshop's acceptability was found to be very good even if the reflective-learning approach represented a new way of delivering CE activities. Satisfaction was quite high. Participants said the workshop increased their understanding of other professionals' roles, changed their previous assumptions about collaborations and facilitated networking. Action

plans to improve quality of primary care were collaboratively developed by participants.
Conclusions: We think this format of IPE intervention is promising if it is repeated and integrated into practice on at least an annual basis.
Take-home messages: An IPE intervention composed of feedback, reflection and action planning is promising to improve interprofessional collaboration in primary care.

4AA/8
Defining Interprofessional Teaching Competencies at a Large Mental Health Teaching Hospital

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Background: Professionals at Canada's largest mental health hospital perform in diverse teaching capacities; serving as supervisors, preceptors, mentors, faculty, and clinical instructors. While these roles are crucial to education, research, and knowledge transformation, current preparation largely emphasizes knowledge generation in the field. Much less attention is placed on teaching competencies that may contribute to knowledge translation. Competency-based (CB) educational design enables transparency, accountability and objective teaching evaluation. CB approach to teaching excellence sets the stage for individualize educators' professional development, change teaching practice, and enhance students' experiences. By defining teaching competencies, key faculty development (FD) priorities may be defined institutionally, driving educational opportunities consistent with health care's changing landscape (Frenk et al 2010). The purpose of the study is to explore how teachers from various disciplines: 1. Describe interprofessional teaching competencies within the mental health/addiction field; 2. Define developmental indicators for teaching excellence;
Summary of work: The study uses grounded theory which provides a systematic approach to explore multiple viewpoints and discover how meaning and interactions are constructed. It explores teaching competencies' perspectives and priorities from individuals in diverse professions and teaching roles. Approximately 25 individual, semi-structured interviews will be conducted between January and March 2013.
Summary of results: A coding structure will be developed based on thematic analysis of major themes and applied to the data set using Nvivo software. Findings including developmental indicators for teaching excellence and lessons learned will be shared.

Conclusions: Discussion will focus on how identified competencies/priorities are used to inform domains of an organizational Interprofessional FD Framework to and how the work contributes to the articulation of a skills development continuum that shape a common language for expectations, support, and outcomes for professionals expected to perform in various teaching roles.
Take-home messages: Identification of teaching competencies for FD framework domains.

4AA/9
The production of learning objects in a Family's Health course for the multiprofessional teams of the Primary Health Care

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Background: The clinical content of post-graduation course of Family Health, offered by the UFCSPA in the UNA-SUS system, in distance education, is organized in complex cases that describe ordinary clinical situations in Primary Health Care (PHC) for doctors, nurses and dentists.
Summary of work: The development process of the course's material involves many stages, some of them simultaneous, because each one of the cases is divided in content for each one of the 3 professional areas. In the beginning, the teachers with experience in PHC planning and creating the content, were supervised by coordinators of each area. In the following stage, a content coordinator reviews the material and suggests alterations. In the production, the contents are changed into many media, like videos, comics, podcasts, texts and exercises. These files are organized in learning objects and packed in the SCORM format. The contents of the three professional areas are put in an unique learning object.
Summary of results: Ninety learning objects for thirty complex cases were developed and validated. The material was already used for more than one thousand students and these materials are available at the Brazilian Ministry of Health's library of educational resources in Portuguese.
Conclusions: The use of virtual learning environment as tools of production management makes faster the process of development and validation of the educational material.
Take-home messages: The organization of the contents in an unique learning object creates an environment

that integrates the students of the multiprofessional team, qualifying their training in Primary Health Care.

4AA/10
Exploring Stereotypes in Healthcare Professions

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Background: Stereotypes are beliefs that groups of people (e.g. professional group) are associated with certain traits. Intergroup behaviors could be guided by established stereotypes and may serve as a means to deal with an outgroup efficiently by expending minimum energy. Stereotypes act as shortcuts for healthcare professionals to cope with the demands placed on them during their interactions with patients and other professionals. However, stereotypes may generate negative expectations of another group's attitudes and behaviors. Therefore, the aim of this pilot study was to understand both the negative and positive perceptions of doctors and nurses by healthcare professionals in Singapore.
Summary of work: Forty participants from different professional backgrounds (doctors, nurses, allied health professionals, administrators, social workers) were asked to choose 3 negative and 3 positive adjectives out of ten options describing both nurses and doctors.
Summary of results: The top three negative adjectives chosen to describe doctors were: arrogant, detached, not a team player; and to describe nurses were: lacks leadership, lacks initiative, low confidence. The top three positive adjectives chosen to describe doctors were: knowledgeable, confident, professional; and to describe nurses were: compassionate, dedicated, team player.
Conclusions: This pilot study provided us with an understanding of the perceptions of doctors and nurses by healthcare professionals. The next step is to explore whether the healthcare professionals have an implicit bias towards their own professional group which may affect their interactions with others. We are currently in the process of furthering the research to investigate implicit attitudes among doctors and nurses using implicit association test.

4AA/11
Educating the Hospital on Sepsis and Making Changes to Improvement Management: A Quality Improvement Project

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Background: Surviving sepsis requires early recognition and treatment to maximise chances of a positive outcome. Delivering this requires increased awareness of sepsis in all members of the multidisciplinary team.
Summary of work: This is a foundation doctor-led project implementing quality improvement methodology by using small interventions and assessing them regularly. We aimed to increase the multidisciplinary team's knowledge of sepsis using a multimodal approach and hence improve its recognition and treatment on our acute admissions ward.
Summary of results: An initial audit was conducted looking at sepsis recognition and treatment on an acute medical ward. A questionnaire was formulated assessing junior doctors' and nurses' knowledge of sepsis. Hospital-wide teaching presentations, patient experience lectures and interactive teaching to junior doctors, senior doctors and nursing staff were organised. Additionally a 'sepsis sticker' has been produced to aid junior doctors and others on the ward to recognise sepsis. We have conducted several PDSA cycles and made alterations to the sticker at each stage to make it more effective.
Conclusions: The questionnaire showed only 11% correctly identified SIRS criteria. The audit showed only 27% of those with sepsis were correctly recognised and none had sepsis 6 as per guidelines. Our latest PDSA cycle shows 90% of ward admissions are using the 'sepsis sticker'. We plan to re-audit notes on acute medical wards soon to show that the many education sessions and educational 'sepsis sticker' have improved sepsis recognition and treatment of sepsis.
Take-home messages: A multiprofessional education programme involving teaching sessions, patient experience lectures and interventional aids increases recognition and management of sepsis.

4AA/12

Inter-professional Collective Learning among Emergency Medicine Health Care Professionals: An Exploration of Needs, Desires and Opportunities

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Background: The Emergency Department (ED) is unpredictable with constant demands on time and resources. Owing to this and shift work, emergency physicians (EP), nurses (RN) and other health professionals (HP) in the ED are infrequently afforded time to debrief their clinical experiences in a collective forum. The objective was to explore ED stakeholder's perspectives of current culture of interprofessional education (IPE) and value of new opportunities.
Summary of work: Twelve semi-structured interviews were conducted with ED professionals (6 RNs, 5 EPs, 1 social worker) in an academic, inner city hospital. Method of constant comparison was used for analysis, including searches for disconfirming evidence.
Summary of results: While stakeholders reported good working relationships in the clinical setting, current culture for discussion was identified as largely informal, brief, ad hoc and siloed within professions. Few formal opportunities exist and are EP focused, as the absence of paid education and limited access during shifts due to high clinical volumes prevents involvement of other HPs. Lack of IPE was perceived to negatively impact team dynamics and limit team members' understanding of roles. New IPE opportunities were recognized as offering enrichment to the ED through: improved patient care; process and innovation; burnout prevention; and understanding roles and perspectives. Suggestions included simulation, timely formal debriefings and regular IPE grand rounds. To maximize attendance outside of clinical shifts, these must be substantially value-added with high impact to clinical practice, compelling subject matter, and accessible to all.
Conclusions: The ED is a fast paced, high stress environment with many different HPs and external pressures. IPE and discussions support enhancement of not only care of the patient, but also the experience of the HP. Future work will include formation of an IPE Steering Group and program planning to develop innovative IPE in the ED.

4AA/13

How do academic specialists impact team-based care in the community?

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Catherine Yu (University of Toronto, Medicine, Toronto, Canada)

Background: Little evidence exists in the interprofessional education literature that discusses the impact of the relationship between specialist facilitators and primary care participants at the post-licensure level. We explored if and how the nature of this relationship impacts team function in a multidisciplinary primary care setting.
Summary of work: A university-affiliated, multidisciplinary team of specialists led longitudinal educational sessions for community-based multidisciplinary primary care teams. We collected data through interviews, facilitator field notes and transcripts of communications between facilitators and participants. We used a constructivist, grounded-theory approach with the social interaction between facilitators and participants as the unit of analysis.
Summary of results: Facilitator-participant interaction fostered team-based learning through identity construction and development. Three intertwining themes emerged: 1) fostering a learning community: specialist presence was an impetus for team members to congregate and share ideas, 2) specialists as a platform: facilitator-participant interaction provided opportunities for non-physician members to promote their ideas, worth and value to their team, 3) specialists as an informal resource: in between sessions, non-physician participants sought 'curbside' clinical advice from facilitators. Unexpected effects were observed: the ability to directly contact specialists undermined contact within the primary care team. Increased recognition of team members came with requests for increased support or remuneration that were not possible.
Conclusions: Academic specialist facilitators can have both positive effects on team-based care and unintended negative effects on boundaries within the team.
Take-home messages: With universities playing roles in continuing education, faculty development should address how facilitators could mitigate their potential to impact participant team dynamics.

4AA/14

The Development of Dental Care Professionals as Educators in an Orthodontic Outreach Training Centre

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Background: DCPs who have trained in the same outreach environment as Orthodontic Therapists and Orthodontic Nurses have worked as a team in an inter-professional learning environment. They have further developed as educators and are integrally involved in the education of postgraduate MSc, Orthodontic Therapy and Orthodontic Nurse students. This educational development is being evaluated with a view to further expansion and development.

Summary of work: DCPs are actively engaged in the education of postgraduate dental students and other DCP students. They have initially been mentored by the Course Directors and have initiated change and improvements to teaching practice. They are part of the University of Warwick tutor development programme. Assessment and appraisal is carried out by the Course Directors and University Education Director.

Summary of results: Dental Care Professionals are a valuable addition to the teaching Faculty and, based upon feedback received, their role is clearly valued by students and colleagues. They have been trained and work in an inter-professional learning environment and are ideally suited for teaching roles in the education of students.

Conclusions: Outreach based training in dentistry is proving to be enhanced by the involvement of Dental Care Professionals. An interprofessional education environment allows both educators and students to interact and enhance each other's development.

Take-home messages: Dental Care Professionals are a valued part of both the academic and clinical training for dentists and dental care professionals.

4AA/15
Working together, Learning together: A Study of Interprofessional Education in Primary Care

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Background: Interprofessional Educational (IPE) is promoted by the World Health Organisation. However few studies exist in primary care and the evidence for its benefits were equivocal in a recent review (Layzell, 2012). Studies suggest that doctors find it more useful than other participants, and often dominate discussions (Underwood et al., 2002). This study assesses the effectiveness of an IPE programme delivered to a wide range of staff within primary health care teams.

Summary of work: NHS Dorset, Bournemouth & Poole PCT appointed four GPs to deliver one hour workshops in 103 GPs practices. The workshops were designed to raise awareness and knowledge of dementia and all members of primary health care teams (clinical and non-clinical) were invited to attend. Qualitative and quantitative data were sourced using pre and post workshop questionnaires.

Summary of results: Preliminary data suggest that participants found the workshops useful, their knowledge improved and learning as a team enriched the experience. A more detailed analysis will be provided by participant group (e.g. comparing GPs, nurses, reception staff, management), as well as a qualitative analysis of their comments.

Conclusions: Preliminary data suggest that Interprofessional Education is useful and valued by primary care teams. Participants commented that learning together allowed them to "know the views of others" and have a "better understanding of objectives". We propose that patients benefit when primary care teams have a mutual understanding of care pathways, particularly for chronic conditions such as dementia.

Take-home messages: Interprofessional Education can enrich learning in a primary care setting.

4AA/16
Interprofessional Collaboration between Residents and Nurses on a Simulated General Internal Medicine Ward: Behaviors Enhancing Teamwork Quality

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Background: Understanding of nurse-resident interactions in Internal Medicine is insufficient. The aim of our study was to describe behaviors enhancing teamwork quality in this setting.

Summary of work: 14 Internal-Medicine resident-nurse pairs volunteered. They managed two cases, using high-fidelity simulation. Recordings were transcribed and analyzed, using template analysis. Three researchers coded the videos independently, then discussed to reach consensus. Teamwork quality was scored according to patient management efficiency and atmosphere of the interaction.

Summary of results: Preliminary results suggest that nurse-resident pair efficiency was associated with the presence of common goals for patient management and shared decision making within the pair. Residents' and nurses' leadership played a major role on overall efficiency but nurses' autonomy appeared even more important in urgent cases. A harmonious atmosphere during the interaction was related to nurses' leadership, as well as residents' and nurses' mutual listening and help. Behaviors enhancing team building, such as

providing feedback and controlling own negative emotions also influenced atmosphere. This favored shared decision making and establishment of common goals. Additionally, residents' and nurses' expressions of leadership tended to increase when they decreased in the other team member.

Conclusions: Efficiency in patient management seems to depend on the presence of common goals within nurse-resident pairs and on behaviors enhancing harmony. Residents' leadership is traditionally expected but nurses express their leadership even more when residents are less autonomous. Behaviors enhancing teamwork quality in Internal Medicine should be included in interprofessional education.

Take-home messages: Some behaviors can be identified as enabling factors for teamwork quality in Internal Medicine settings.

4AA/17

Interprofessional simulation training: is it what the students want?

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Nick Murch (Royal Free Hospital, Simulation centre, London, United Kingdom)

Background: Interprofessional simulation is a growing field in undergraduate education. Team-working and communication within interdisciplinary teams is essential in delivering high quality healthcare.

Summary of work: We are currently in the third year of our simulation training programme for third year medical students and second year nursing students, with the aim of increasing interdisciplinary communication at an early stage of training. Simulation scenarios were developed to with reference to both medical and nursing curricula to develop non-clinical skills, including communication, patient safety, handover and safeguarding. Feedback from the students was collected and analysed.

Summary of results: 36 medical students and 32 nursing students submitted feedback. Mean pre-session confidence score was 1.4/5 (medical students) and 2.1/5 (nursing students). Post-session confidence scores were 3/5 (medical students) and 3.8/5 (nursing students).All students recorded that it was the first time they had worked with undergraduates from a discipline. All students indicated that they found the sessions beneficial, and have better understanding of the roles within a multidisciplinary team. All students indicated they would like further interprofessional training.

Conclusions: Studies have suggested that by final year of training, attitudes towards other healthcare professionals are entrenched and can act as a barrier to teamwork. Both nursing and medical students enjoy training in high fidelity simulation scenarios, and feel their understanding of each other's roles is enhanced.

Take-home messages: Interprofessional simulation training fosters enhanced communication and mutual respect amongst nursing and medical students. Students of both professions feel that they have limited exposure

to each other during training, and are keen to correct this.

4BB Posters: Curriculum Evaluation
Location: South Hall, PCC

4BB/1
Self-directed learning – evidence based algorithm

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Background: There are many articles on self-directed learning, but not many evidence based algorithms in medical education.
Summary of work: I have presented the self-directed learning flow chart, incorporating various theories and evidence. Self-directed learning is a student centred approach to learning where the learners take control of their own learning processes and experiences. This flow chart forms a tool emphasising on how the students will be able to acquire new skills associated with self-directed learning.
Summary of results: This algorithm has resulted in the generation of simple, stepwise and easy to follow approach in motivating and facilitating student self-directed learning.
Conclusions: Self-directed learning is a complex process with many factor determining the outcome. Self-directed learning allows the students to have freedom and flexibility.
Take-home messages: Self-directed learning is an effective way of learning in modern medical education.

4BB/2
Medical interns' participation in improving medical training in a growing organization

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Angela Falk (Sahlgrenska University Hospital, Medical Intern Administration, Gothenburg, Sweden)

Background: Since 2009 the Sahlgrenska University Hospital (SU) has doubled its number of medical interns. The Intern Council (IC) has been implemented by the SU Intern Administration Office since October 2009.
Summary of work: Interns with an interest in organizational structure and leadership are recruited to join the IC. These interns are assigned one or several clinical rotations to supervise. They receive input on a monthly basis from their fellow interns on each clinical rotation. Ideas for improving the medical training are referred to each rotation director, by the IC, through regular meetings. Issues raised at these meetings are implemented through development plans, when needed, to improve clinical training. Furthermore, the IC has regular group meetings to continuously improve its own structure.

Summary of results: The IC has generated a forum for the growing number of interns at SU to discuss their clinical experiences and ideas for improvement. It is a structured feedback process whereby input is fast-tracked to the executive rotation directors. Interns' influence on their training is hence increased. Moreover, several minor and major improvements in various areas have been made by the clinics as a result of suggestions from the interns.
Conclusions: Interns are interested in improving their clinical training and have many ideas. In a large and continuously growing organization, a structured input to the executive directors is of great importance. One way to achieve this is by the representative structure of an IC.
Take-home messages: Growing organizations need structured feedback loops in a bottom-up approach.

4BB/3
Diagnostic assessment during a new curriculum implementation: How are our medical students doing?

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Melchor Sanchez (UNAM Faculty of Medicine, Secretariat of Medical Education, Mexico City, Mexico)

Background: Curricular change in medical schools implies a change process fraught with challenges and opportunities. UNAM Faculty of Medicine in Mexico is the largest medical school in Mexico, and started a new curriculum in 2010, which includes generic outcome competencies. This paper focuses on a student assessment after the first two years of the program.
Summary of work: The program defined two intermediate profiles (1 at the end of the second year and 2 at the end of the clinical years). The curriculum plan scheduled a diagnostic exam in each profile. The objectives were to evaluate the educational outcomes after the first phase, and to provide diagnostic information about student educational achievement to the relevant stakeholders. The test had two components: a written multiple-choice question test, designed to sample the knowledge domain of all the courses from the first two years; and an OSCE-type exam designed to explore the competencies.
Summary of results: The exams were applied in June 2012, to 493 students that successfully completed second year. The written test had 211 items, Cronbach's alpha 0.85, mean difficulty of 0.60. The OSCE exam had nine six-minute stations, that sampled the intermediate profile competencies. The average score of the OSCE test was 58%. The global results were provided to the medical school authorities and the academic departments, and the individual results with detailed scores to the medical students.
Conclusions: The study provided information on knowledge and competencies useful to the institution, teachers and students.

Take-home messages: Curricular change must be continuously evaluated, in order to diagnose the strengths and deficiencies of the educational strategies and outcomes.

4BB/4
Application of SPICES model for stroke teaching and learning (SPICES the Stroke)

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Background: SPICES model has been proposed as a framework for improvement in teaching and learning. Little evidence exists to document the utility of the model in the assessment of stroke teaching and learning in Thailand.
Summary of work: Study participants included 61 clinical year students and 19 teachers. SPICES model was used to assess the medical students and teachers' perception of stroke teaching and learning, using five-point scale questions proposed by Harden. SPICES score was defined as the sum of the score on five aspects of expected and present stroke teaching and learning – higher scores represent more innovative teaching and learning. SPICES scores for expected and current stroke teaching and learning were compared. Factors associated with high SPICES scores were identified using logistic regression.
Summary of results: Mean (SD) work experience of the teacher was 11.8 (5.0) years, ranging from 2-23 years. Less than 10% of teachers and students perceived that current stroke teaching and learning was student-centred, elective and systematic- and community-based. Students tended to expect future teaching and learning to be more discipline, hospital-based and standard, while teachers expected more integration and community-based. Teachers reported that current teaching and learning was fairly traditional, and expected it to be a great deal more innovative (median score 11 and 24 for current and expected teaching and learning, respectively). Students also expected teaching and learning to be more innovative, but with a lesser extent (median score 12 and 19 respectively). Factors associated with future high score were age and working time of teachers (p<0.05).
Conclusions: Teachers expected teaching and learning to be more innovative than it currently was, and this expectation was more significant than students'. Age and working time of teachers were associated with expectation of innovative teaching and learning.

4BB/5
Medical Students' Opinion about Structured Ward Round with Post-Ward Round Meeting at a Pediatric Ward of a Hospital School in Northeast Brazil

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Background: Ward round is considered a valuable tool for acquisition of medical skills, but few studies investigate its efficacy and effectiveness for learning purposes. Structured formats for this activity have been considered in order to maximize learning opportunities, among which post-ward round meeting, an opportunity to discuss issues which are inappropriate at bedside. The aim of this study was to determine the students´ opinion about structured ward round with post-ward round meeting.
Summary of work: A quantitative study was performed with medical students in their rotation at a pediatric ward. They attended ward rounds not followed by post-ward round meeting for two weeks. In the next fifteen days, post-ward round meeting was included. After that, a questionnaire (five point Likert scale) was applied to determine students´ opinion on educational and operational aspects related to post-ward round meeting.
Summary of results: Seventy four subjects were enrolled. Students' opinion about different aspects of post-ward meeting averaged satisfactory. The questions which obtained best scores were: "post-ward round meeting is an opportunity to discuss practical situations experienced at bedside" (mean=4.3, SD=0.8); "post-ward round meeting provides discussion of issues which are inappropriate at bedside" (mean=4.4, SD=0.6); and post-ward round meeting promotes student's motivation (average = 4.0, SD = 0.9). Questionnaire's reliability test (Cronbach's alpha) was 0,901.
Conclusions: Considering the results, the medical students' opinion is that ward round structured with post-ward meeting had a positive influence on their learning process.
Take-home messages: Implementation of the post-ward meeting may benefit professional training of medical students, in particular regarding skills and attitudes' acquisition, such as communication skills and ethics attitudes.

4BB/6
Multisource feedback analysis of pediatric outpatient teaching

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Background: This study aims to evaluate the outpatient communication skills of medical students via multisource feedback, which may be useful to map future directions in improving physician-patient communication.
Summary of work: Family members of patients, nurses, a clinical teacher, and a research assistant evaluated video-recorded medical students' interactions with outpatients by using multisource feedback questionnaires; students also assessed their own skills. The questionnaire was answered based on the video-recorded interactions between outpatients and the medical students.
Summary of results: A total of 60 family members of patients completed the questionnaire, but only 58 (96.7%) of them agreed with the video recording. Two reasons for reluctance were "personal privacy" issues and "simply disagree." The average satisfaction score of the students was 85.1 points. The family members were most satisfied with the "teacher's attitude," followed by "teaching quality". In contrast, the family members were most dissatisfied with "being open to questions." Among the 6 assessment domains of communication skills, the students scored highest on "explaining" and lowest on "giving recommendations." In the detailed assessment by family members, the students scored lowest on "asking about life/school burden". In the multisource analysis, the nurses' mean score was much higher and the students' mean self-assessment score was lower than the average scores on all domains.
Conclusions: The willingness and satisfaction of family members were high in this study. Students were not efficient in giving recommendations to patients. Multisource feedback is useful in providing more accurate evaluation of students' communication competence and in identifying the areas of communication that require enhancement.
Take-home messages: Multisource feedback with video-taping is useful in providing more accurate evaluation of students' communication competence and in identifying the areas of communication that require enhancement than only teacher's evaluation.

4BB/7
Ordering patterns for laboratory and radiology tests by students from different undergraduate medical curricula

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Background: The overuse of laboratory tests and radiology imaging and their possible hazards to patients is observed with growing concern in the medical community. With this study the authors wished to determine whether ordering patterns for laboratory and radiology tests by medical students are related to undergraduate training.
Summary of work: We developed an assessment for near graduates in the setting of a resident's daily routine including a consultation hour with five simulated patients, three hours for patient work up, and thirty minutes for reporting of patient management to a supervisor. In 2011, 30 students from a vertically integrated (VI) curriculum (Utrecht, The Netherlands) and 30 students from a traditional, non-VI curriculum (Hamburg, Germany) participated. We compared the number of laboratory and radiology requests and correlated the results with the scores participants received for the competence "scientifically and empirically grounded method of working."
Summary of results: Students from a VI curriculum used significantly (p<.01) less total laboratory requests (N=283 versus N=466) which correlated with their scores for a "scientifically and empirically grounded method of working" (Pearson's r=.572). A significantly (p<.01) higher number of radiology imaging was ordered with a large effect size (V=.618) by near graduates from a non-VI curriculum (N=156 versus N=97) even when this was not supporting the diagnostic process.
Conclusions: The focused ordering patterns from VI students might be a result of their early exposure to the clinical environment and a different approach to clinical decision making during their undergraduate education.
Take-home messages: The type of medical undergraduate curriculum might affect students' ordering patterns in patient work-up.

4BB/8
Assessing the quality of clinical teaching - Differences in medical students' versus interns' perceptions

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Background: The quality of clinical teaching during rotations is important for both medical students and interns. The aim of this study was to evaluate the perception of the quality of clinical teaching for third and fourth-year medical students and interns at identical rotations.

Summary of work: Ten questions (Likert scale 1-6) reflecting different aspects of clinical teaching were distributed to medical students and interns at Uppsala University Hospital, Sweden. Data was collected during autumn 2011 through 2012 from all departments that had rotations for both medical students and interns (anesthesia, psychiatry, cardiology, orthopedics, infection and emergency medicine).

Summary of results: The students' and interns' response rates were 70 % (n=749) and 100 % (n=176) respectively. The students' overall mean rating±SD was 4.69±0.99 compared to the interns' 4.60±0.79 (p=0.02). The students gave higher ratings regarding the learning climate at the rotation (5.28±1.01 versus 4.75±1.11, p<0.001) and the amount of feedback received from clinical tutors (4.53±1.46 versus 3.98±1.29, p<0.001). The interns rated a higher level of active participation (5.06±1.16 versus 4.34±1.52, p<0.001).

Conclusions: Overall the medical students rated their clinical rotations slightly higher compared to the interns. In this setting, students appear to receive more feedback and to have a better learning climate, while interns are provided with better opportunities for active participation.

Take-home messages: Medical students and interns perceive different qualities of clinical teaching. Knowledge about the specific strengths and weaknesses for each phase of medical education enables opportunities to further strengthen the quality of clinical teaching.

4BB/9
Comparison on OSCE Outcomes between Undergraduate and Post-Baccalaureate Medical Program

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Background: The choice between undergraduate medical program (UGP) and post-baccalaureate medical program (PBP) has long been discussed and debated. Our university has both 7-years UGP and 5-years PBP. The liberal curriculum is condensed into the first two years in the UGP and medical curriculum starts since their third year. Students of PBP enter the same medical curriculum since their first year.

Summary of work: A study was pursued by OSCE (Objective Structured Clinical Examination) to compare the clinical skill competency between the UGP and the PBP students in the month before they finished the program. The OSCE included 3 stations of history taking, 2 stations of communication skill, 3 stations of physical examination, and 4 stations of procedure skill.

Summary of results: Among these examinees, 48 were PBP students and 144 were UGP students. The average score of 12 stations was 68.1 on PBP and 66.4 on UGP. The PBP students significantly were better than UGP students (p=0.032). While compare the average score of each station respectively: PBP was better than UGP on one station of history taking (p=0.06), UGP was better than PBP on one station of physical examination (p=0.017), no significant difference on other 10 stations. The overall success rate was 97.9% on PBP and 93.1% on UGP.

Conclusions: One of our previous studies showed the average score of medical curriculum of PBP students was better than UGP students because of more maturity and hard study. In this study, the average OSCE score also demonstrated the same tendency.

Take-home messages: The OSCE showed the clinical competency of post-baccalaureate medical program students is better than undergraduate medical program students even though they accepted the same medical curriculum.

4BB/10
Trainees' perception of medical teaching at Saraburi Medical Education Center from 2005 to 2012

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Background: Saraburi Medical Education Centre (SMEC) was established to increase the production of medical doctors distributed in the rural areas of Thailand. Trainees' perception on sufficient education and factors associated with it were evaluated.

Summary of work: A cross-sectional semi-qualitative research was conducted to 240 alumni graduated from SMEC between 2005 and 2012. Information on trainees' grade point average (GPA) and the number of trainers was retrieved. The questionnaires were constructed to obtain general information as well as training satisfaction, clinical supervision, preparedness for practice and capacity of the center. Student t-test was used to assess the differences of GPA between 2005-2008 and 2009-2012. Relationship between key factors was investigated using Pearson's correlation.

Summary of results: The data were completed for 51(21%) participants. Participants' GPA graduated after 2008 was better than those graduated before 2008 (p diff =0.005). When the two periods were compared, the satisfactory score of teaching quality increased significantly from moderate to high in most

departments. The decrease ratio of trainers to trainees was correlated to an improvement of satisfaction (r = 0.6). High rated and positive comments on clinical skills were reported. The trainees requested better educational resources but they were satisfied with capacity at the center.

Conclusions: Participants were satisfied with medical training at SMEC. A small ratio of trainers to trainees might contribute to the satisfaction. The center provided sufficient clinical knowledge, experiences and skills. However, an improvement in teaching quality and clinical supervision at SMEC are still recommended.

Take-home messages: Close relationship between trainers and trainees could drive high levels of training satisfaction.

4BB/11
Evaluation of academic teaching during clinical clerkships by undergraduate medical students

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Background: Academic medical education and clinical skills training should complement each other during clinical clerkships to optimize medical students' knowledge and enrich their future practice. Therefore, we conducted a study to assess the medical students' satisfaction regarding the academic teaching during clinical clerkships in our region.

Summary of work: The study included medical students underwent clinical clerkships between September 2009 and November 2012. Eligible students were invited to fill-in an online questionnaire. There were asked to rate their clerkships with a 20 points scale.

Summary of results: The study included 3967 medical students who agreed to answer the questionnaire. The study showed that, medical doctors (66%) and residents (25%) are the main providers and organizers of academic teaching. The notation of education improved with the frequency of academic classes (Score > 14.5 / 20 if there is more than one class per week) even if these classes are rare (<1 class/month for 63% of students responded). Organizing sessions for medical students to present case reports increases their clerkship satisfaction (score rise from 13.1/20 until 14.7/20).

Conclusions: Students are willing to take profit from their clerkships in hospitals. Medical students give better notation to clerkships implementing educational academic programs in parallel to clinical trainings. We therefore suggest introducing such programs with case report presentation, presentations made by students and courses designed in relevance to department theme.

Take-home messages: Medical students satisfaction increases with organizing frequent educational activities during the clerkships and we believe that it is our duty to find more time to satisfy our future colleagues.

4BB/12
Mirror, mirror on the wall: quality for all

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Background: Medical education encourages reflection in trainee doctors in order to improve professional practice. Yet do these training programmes also hold a mirror up themselves to improve their own level of quality?

Summary of work: GEAR – a national quality assurance system for the eight departments for specialty training of general practice in the Netherlands - consists of a five year cycle with two rounds of assessment and improvement. The first round was started in September 2012 with a self-evaluation. The training programmes evaluated their own performance on a number of domains, such as testing & assessment and academic level. Each programme produced a reflective report concerning its own performance based on the self-evaluation. A two-day audit followed on from this for each programme.

Summary of results: **Each programme received a report of the results from the audit. An overall report was also produced** in addition to this with the results from all eight programmes revealing the state of affairs and focus points for the courses. The overall report also enabled benchmarking between the programmes allowing examples of good practice to be exchanged. The programmes drew-up improvement plans based on the reports with eighteen months to implement these before a new GEAR round commenced.

Conclusions: The GEAR system holds up a mirror to general practitioner training programmes in the Netherlands to facilitate collaboration for quality improvements in programmes.

Take-home messages: Practice what you preach: Don't just focus on trainee doctors, hold up a mirror to training programmes as well.

4BB/13
Geriatric education: Didactic teaching improves knowledge but clinical exposure improves attitudes

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Reshma Merchant (National University Health System, Department of Medicine, Singapore)
Wee Shiong Lim (Tan Tock Seng Hospital, Department of Medicine, Singapore,)
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Background: The study objective was whether a holistic education programme incorporating multiple educational strategies such as early exposure, ageing simulation and small group teaching results in improving

geriatrics knowledge and attitudes among medical students

Summary of work: We administered the University of California Los Angeles (UCLA) Geriatric Knowledge Test (GKT) and Singapore-modified UCLA Geriatric Attitudes Test (GAT) to 2nd year students of old curriculum (control) and before and after new module to students of new curriculum (intervention) with appropriate ethical approval.

Summary of results: For control group the response rate for GAT was 76.8% (195/254). For intervention cohort, response rate for GAT was 78.1% (204/261) before the module; whilst the response rates were 64.8% (169/261) and 75.8% (198/261) UCLA-GKT and UCLA-GAT respectively after the module. There was no difference UCLA-GKT scores between baseline control and intervention cohorts [mean: 31.6% (SD = 15.7%) versus 33.5% (SD = 14.2%), p = 0.207]. UCLA-GKT scores significantly improved in the intervention cohort after new module [mean: (before) 34.0% (SD=14.3%) versus (after) 46.0% (SD = 16.2%), P <0.001]. The attitudes towards geriatric patients of intervention cohort before new module was less positive than baseline reference cohort [mean GAT: (intervention) 3.46 (SD = 0.36) versus (baseline reference) 3.56 [(SD = 0.32), P = 0.015]. Attitudes of the intervention cohort became more positive after new module [mean GAT: (before) 3.46 (SD = 0.36) versus (after) 3.53 (SD = 0.36), P = 0.001].

Conclusions: An integrated geriatric module incorporating sound educational principles improved both geriatrics knowledge and attitudes of early medical year medical students.

4CC Posters: Continuing Professional Development
Location: South Hall, PCC

4CC/1
Reliability analysis of medical record review for assessing patient care performances

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Background: Implicit review of medical records has met with difficulties because of poor interrater reliability. To establish a reliable peer review system of medical records in Japan, we have attempted a pilot study in 2011, with moderate reliability. After revising an evaluation sheet and developing clear criteria, we have conducted a study to examine reliability and validity of this system.
Summary of work: We randomly selected 112 patients, who visited (and were hospitalized in) four general hospitals in the Tohoku region in Japan from 2008 to 2012. Their main diagnoses included 30 gastrointestinal diseases, 30 cardiovascular diseases, 12 respiratory diseases, and 40 other diseases. Four reviewers, who are well-trained general internists outside the Tohoku region, visited the hospitals independently, and evaluated the outpatient medical records (paper-based for one hospital and electronic for three hospitals) according to the evaluation sheet. The evaluation sheet consists of 14 items (3-point scale) for record keeping and 15 items (5-point scale) for quality of care.
Summary of results: The total time required for evaluation ranged from 1170 to 1405 minutes (mean 1260 minutes: 11.3 minutes per patient). The mean total score was 84.1±7.7 (54-108). The single measure and average measure intraclass correlations for reviewers were 0.733 (95% confidence interval, 0.720-0.745) and 0.917 (95% confidence interval, 0.912-0.921) respectively. Factor analysis for the items revealed six factors: history taking, physical examination, clinical reasoning, management and outcome, rhetoric, and patient relationship.
Conclusions: This system proved feasible with high correlations for assessing patient care performances.
Take-home messages: With a structured evaluation sheet, proper criteria, and trained reviewers, implicit review of medical records could have adequate reliability.

4CC/2
Continuing Medical Education in a Resource-limited Setting: Staff Experiences

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Lois Thien (Mae Tao Clinic, Medicine, Mae Sot, Thailand)

Background: Medical care in resource-limited settings is commonly provided by clinical officers without medical school training. Continuing Medical Education (CME) is essential for these healthcare workers given their relative lack of academic background. At Mae Tao Clinic, Thailand, CME comprises weekly lectures to clinical officers from all departments, with written exams. By analysing staff experiences and individual learning behaviour, we hoped to identify key components of effective educational delivery that could potentially be applied to similar low-resource settings.
Summary of work: We interviewed 32 clinical officers from 4 departments (medicine, paediatrics, surgery and women's health) to appraise the current programme, identify areas for improvement and characterise individual learning habits.
Summary of results: 27/32 (84%) attended most/all sessions. Because many staff anticipated future employment in smaller, general clinics, most preferred learning about a wide range of subjects, with only 6/32 (19%) preferring topics solely relevant to their department. Preferred teaching format was tutorials with handouts (84%). All found exams valuable as revision motivators and learning tools. 23/32 (72%) referred to lecture handouts when consulting. Only 6/32 (19%) used the internet as a learning resource, with lack of computer training and access as the main barriers. All expressed a desire for computer training.
Conclusions: We have identified the following key components of an effective CME programme: 1. Frequent tutorials with handouts; 2. Broad range of cross-specialty topics; 3. Regular examinations; 4. Access to computer training and e-learning resources.
Take-home messages: These features may be applicable across similar healthcare settings.

4CC/3
Tutoring in a Distance Education of Open University of National Health System, in Brazil

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Background: UNA-SUS is a collaborative network of 16 Universities (Open University of Brazilian National Health System) that offer distance education in a postgraduate level for primary health care professionals in Brazil. One of the outcomes was the greater coverage and better quality of learning opportunities. UNA-SUS offered 33,167 places in all courses and graduated 15,766 healthcare professionals in postgraduate courses, in 2012. This paper aimed to evaluate tutorship developed in UNA-SUS.
Summary of work: The profile of the tutors and main activities developed by the tutors during the course of the 9 Universities and 11 Specialization courses of Family Health, Mental Health and Management of Pharmaceutical Assistance was analysed.
Summary of results: Tutors were physician, nurse, dentist, pharmacist, and physiotherapist, with Specialization, master degree and doctorate degree. Their backgrounds were teaching in Higher Education and practice in healthcare services, mainly in Primary Health Care. Role of tutors were to promote learner autonomy, by providing environment, materials, and formative assessment to students to facilitate learning. They usually dedicated 12 hours per week. The relationship of tutor and students was established in a virtual learning setting, and each tutor followed 25-30 students.
Conclusions: The tutor had an important role to motivate students to study and finish their courses by offering guidance, assessment, and support.
Take-home messages: Tutor development is key issue to ensure the quality of tutoring.

4CC/4
Readiness for Online Learning among Medical Professionals - The Sri Lankan Experience

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Background: Providing continuous medical education to medical professionals requires an efficient and a speedy channel of delivery. Many issues are identified related to traditional classroom teaching, making it inappropriate. Web based learning is gaining popularity and it is essential to evaluate its acceptance among medical professionals.
Summary of work: A self-administered questionnaire to identify level of access to IT facilities, current level of usage of IT for learning and self-perception of competence in using online material for learning was used. Stratified sampling method was used to facilitate representation of all major levels of health care. One unit from each speciality was randomly selected in each institution. All medical officers of the selected unit were included in the study.
Summary of results: From the sample, 96.3% had regular access to internet of which 91.9% had internet access at home and majority (74.5%) used laptops for this. Internet use was limited to less than one hour per day in 62.2% and use of internet for learning was 78.3%. For online learning, 32.9% were willing to spend less than 30 min per day. The competence in using internet was basic or above in 97.3% and 87.4% had confidence in using online journals and databases.
Conclusions: Although most medical professionals have facilities to access internet, the time spent for browsing is restricted. They possess adequate skill to use internet for learning and training programmes need to fit to their time schedule for successful implementation.
Take-home messages: Online Training can play a major role in Continuous Professional Development of medical professionals.

4CC/5
Integration of Translational Science into a Continuing Professional Development Curriculum

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Background: The recent rapid development of medicine has led to an enormous growth in knowledge. However, this burgeoning of knowledge has not necessarily been equated with an increase in the availability of knowledge to policymakers and clinical practitioners. Therefore, knowledge translation has been proposed by advanced economies to tackle the prevailing failure in translating research into practice in health care. It is a process involving the ongoing, iterative and interactive process of translating knowledge from research into clinical practice and policy through addressing the relating translational gaps and complex interactions between researchers and the end users of research – including trainees in clinical practice.
Summary of work: We propose a unique approach to integrate the translational science into a CPD curriculum in a tertiary medical center.
Summary of results: Skills and concepts of evidence-based health care are taught in a series of small-group

didactic lectures and workshops. With the skills of literature search and critical appraisal, participants are encouraged to conduct a systematic review to synthesize current best available evidence relevant to his/her clinical problems. A working group with members specialized in biostatistics and database searching has been setup to offer guidance in the process of knowledge translation. The translational gaps could be identified and closed by designing the relevant strategies through the ongoing and iterative efforts. The effects of the curriculum will be further enhanced and assessed through the link with the resultant quality improvement projects. Occasionally, unmet knowledge need and research opportunities could also be unveiled to better the quality of clinical practice.

Conclusions: Skills in translating research into clinical practice could be taught in a clinical educational curriculum.

Take-home messages: Knowledge translation is a well-appreciated value for health professionals but has not been utilized in a systematic way. We herein demonstrate a preliminary program to integrate the translational science into a CPD curriculum.

4CC/6

"I feel trained to perform joint injections": An interprofessional, multiple-method "mini-residency" for musculoskeletal care

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Background: The George E. Wahlen VA Salt Lake City Health Care System (VASLCHCS) has recently established an interprofessional "mini-residency" in musculoskeletal care. This program seeks to develop knowledge and skills of primary providers, enabling them to manage many patients with musculoskeletal complaints in their clinics, rather than refer.

Summary of work: The mini-residency is informed by Kolb's theory of learning cycles. Two one-week sessions are held, several weeks apart, at VASLCHCS. Curriculum is introduced in didactics (abstract conceptualization), reinforced in small-group, hands-on, interactive sessions with peer teaching and technologically enhanced simulations (active experimentation), and applied in the clinic in supervised patient encounters (concrete experiences with reflective observation). Course evaluation is informed by Kirkpatrick's model of assessing educational effectiveness.

Summary of results: To date, 14 mini-residents have completed a post-course survey (5-point scale; 1 = "not at all satisfied"; 5 = "extremely satisfied"). Overall satisfaction was high (mean = 4.92), and participants felt that their job performance would improve (mean = 4.69). In free-response items, clinic sessions were highly

valued. Eight weeks after the program, eleven participants completed a structured interview. All recommended the training to others. Two had started their own musculoskeletal clinic; 82% had applied content from the mini-residency to their work. Data regarding impact on referral patterns is pending.

Conclusions: An interprofessional "mini-residency" in musculoskeletal care is an effective model of continuous professional education (CPE).

Take-home messages: The interprofessional "mini-residency" model, effective for CPE, may inform future medical student and resident educational experiences.

4CC/7

External motivation and opinion about the influence on the competency of medical doctors of an organized programme of continuous medical education in the field of resuscitation

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Background: Final course results (MCQ and Cardiac Arrest Simulation Test) were registered for candidates that attended Croatian Resuscitation Council courses between 2002 and 2010. Questionnaire has been distributed to all attendees, covering subjects such as professional background, motivation, and satisfaction with courses.

Summary of work: From the total number of 1650 candidates, 793 replied to the Questionnaire. Factors that influence the competency (knowledge and skills) were analysed according to basic education (doctor-nurse).

Summary of results: The results of regression analysis show that many factors influence the competency of candidates at the end of the course (statistically significant model, p<0,001). In the group of medical doctors, external motivators to attend the course (independent decision to attend the course, the need for knowledge and skills due to the needs of everyday work) and the opinion about the course (knowledge refreshment, fulfilled expectations from the course, high overall evaluation of the course) have substantial impact on final course results. Neither of these variables showed connection with the final course result in the group of nurses.

Conclusions: In Croatia, competency of medical doctors, but not nurses, is influenced by external motivation for attendance and opinion about the course.

4CC/8

CPD in Dialog - a model for CPD improvement

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Background: Once the specialist certification has been achieved for Swedish doctors, the conditions for continuing professional development are unspecified. It is an ethical obligation for a doctor to remain updated but the resources for CPD must be facilitated by the employer. Cutbacks in funding and staffing in recent years have brought into focus medical productivity.

Summary of work: Yearly surveys by the Swedish Medical Association from 2005 to 2010 have shown a significant decrease in CPD activities for Swedish doctors. We have therefore developed a model for dialog between specialists and relevant employers intending to improve CPD. In the suggested instrument among the criteria for quality assurance are the provision for individual CPD plans, the presence of educational activities, research projects and time allocated for reflection and dialog within each department.

Summary of results: The model includes: 1. Completion of a questionnaire (a) by specialists and (b) by supervisors and clinical managers in each department under review regarding their perception of CPD; 2. Site visits upon which the results are presented, strong points are emphasized and areas for potential improvement are pinpointed. Conclusions regarding the reason for the outcomes are reached in dialog; 3. A structured action plan for improvement including suggestions for measurable goals and educational activities to be followed-up.

Conclusions: In Sweden CPD for doctors is voluntary. The employer has a fundamental responsibility for creating a supportive learning environment. This instrument is created to facilitate a dialog between the management of the department and the specialist physicians to improve and increase CPD activities.

4CC/9
Application of a 360° Survey as a Measure of Educational Activity Efficacy

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Background: Current medical practice is becoming increasing more team dependent. It is often difficult, particularly when skill deficits involve interacting with team members to determine the efficacy of a remedial intervention. For this study, we employed a tool developed to measure elements of the ABMS/ACGME core competencies focusing on interpersonal and communication skills. The tool, a 360° assessment, was validated against known groups at a single point in time. Here we employed the 360 over repeated waves to determine its sensitivity to change over time.

Summary of work: Data were gathered on physicians referred to a specialized program for high accountability professionals. The 360° evaluated elements of three core competencies: Interpersonal and Communications skills, System-based Practice, and Professionalism were gathered at four points across a year. During that same period, the physicians participated in a Continuing Medical Education (CME) activity focused on these same core competencies.

Summary of results: The findings demonstrated a consistent increase in measured performance across waves. Performance, on average, was significantly improved by the final wave of assessment. Interestingly, although the mean performance did improve significantly, the most striking change was the reduction in very low assessments of performance.

Conclusions: It appears that the 360° approach, at least in this form, is capable of assessing change over time. The comments of participants in the CME activity indicated that the activity was effective at remediating performance. The results of the 360° demonstrate that improvement as well.

Take-home messages: A 360 instrument can be used as a form of ongoing feedback and a measure of outcome for a remedial CME activity.

4CC/10
E-Poster and Virtual Classrooms – Are German Vets Willing to use new ways of Continuing Education?

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Background: Continuing education (CVE) is mandatory for German veterinarians. Web-based-trainings are used in CVE for several years. In the current study the hypothesis was proven that synchronous learning sessions can be supported by electronic media.

Summary of work: E-posters were presented at a neurology conference. For buiatric CVE a social network (NOVICE) was realized and sessions in a virtual classroom were conducted. Acceptance was measured by counting participation and using a survey (6-grade LIKERT-scales).

Summary of results: E-posters in neurology were used by 165/815 (24%) of the participants. The evaluation was very good (1.53) and participants ask for more e-posters at conferences (1.58). The social network is used by 640 German vets. In four virtual classroom-sessions 378 vets participated (40/53/132/153) and gave an excellent feedback. Online-talks should be given more frequently.

Conclusions: Electronic enhanced learning can be used in veterinary continuing education. A need for synchronous communication and interaction exist. New ways of media use helps to keep a social aspect in learning. Due to the described results and the excellent evaluation the use of e-posters and virtual-conferencing will be enhanced.

Take-home messages: With a good didactical concept vets are very willing to use electronic enhanced continuing education.

4CC/11
A new E-learning program about breastfeeding, continuing medical education in paediatrics

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Background: Women mostly stop breastfeeding (BF) because of a lack of support and information in the post-partum period. In spite of the European recommendations: "improvement the training of all the healthcare professionals involved in perinatal period is the first stage of the recommendations to favour BF", during their medical studies, perinatal professionals spend little time studying BF.

Summary of work: Objectives: an E-learning program on BF has been created for healthcare professionals. Material and method: This online program is the result of work between experts in BF and broadcasting distance training professionals.

Summary of results: This "BF e-learning program" can be found within the French Association of Paediatrics website, in the section of the AEEP www.aeep.asso.fr. The healthcare professional will need 3 hours to approach the subject. He will be able to: (1) Discover in the "course" tab, 5 main chapters (epidemiological date-BF benefits-Preparation for BF- BF complications- BF in the everyday life); (2) Use the "navicub system" to reach lexicon or go into tackled issues by a keyword; (3) Use the "documents" tab to download all the documents needed; (4) Strengthen his knowledge by studying clinical cases and get closer to an Evidence Based Medicine method; (5) Validate his training by answering

to the "quiz"; (6) Discuss via the "messaging" tab with the experts authors.

Conclusions: This online program on BF is an educational method which provides continuing medical education and evaluates practices in paediatrics.

Take-home messages: By improving knowledge of healthcare professionals on this subject we hope help maintain BF.

4CC/12
Let's make it work

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Background: Between 2010 and 2040 Dutch population in the age of 65 years and older increases from 15,5 to 25,6%. At least 17% of these elderly need special care. Most of them live in their own house. Due to the care for these elderly General practitioners (GP) will meet a 60% increase of workload. However GPs do not regard themselves able enough for management of diseases and disabilities associated with frail health. Specialists of elderly care are available but cooperation with the GP is not well implemented.

Summary of work: During a 5-month multi professional learning program specialists of elderly care learn to cooperate with their local GPs. Main focus is to work close together and get to know each other's ways of working and mutual expertise. Goal is to bring their complex elderly care at a higher level and to stimulate shared decision making. This process is supported during 5 course days at which guest speakers share their experience and knowledge. In between those days the participants work on themes, together with their local GP.

Summary of results: Evaluation (N=27) focused mainly on the course days itself. Satisfaction rates lie between 56-100% of which only one item (use of literature) was rated 56%. Overall courses are rated >75%: "Recognition and recognizing each other's field of work is very worthwhile." "I found connecting factors to work on better contacts in my region."

Conclusions: The course needs further research to indicate long term success factors.

Take-home messages: Stimulating multi professional work locally can be done by setting up a multi professional course in which participants need to work together closely with local medical professionals.

4CC/13

The role of mentorship in remediating 'struggling' doctors

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Background: Medical revalidation is likely to identify a small number of GPs with performance issues in their clinical practice, and a slightly larger number of doctors with less serious but defined areas for improvement. It is this group of 'struggling' doctors which forms the subject of this work.

Summary of work: This work reports an evaluation of a mentoring network, Wessex Insight, which aims to support struggling GPs with educational needs and non-performance related professional issues. Participants refer themselves to the scheme, often on advice, and engage with it voluntarily. The evaluation considered the impact, if any, of mentoring on the remediation of the mentoring service users and the continuing professional development needs of the mentors. It also looked at the system and processes for referral and case management. Data collection was by interview with GP mentors and mentees as well as analysis of anonymised case paperwork pre- and post-mentoring.

Summary of results: The mentoring process has been found to be empowering and benefits are reported to patient care. The service is evolving and early findings indicate issues emerged concerning case governance, in particular, over the 'closure' of cases. The work suggests that such services need clear guidance on confidentiality and how information is to be shared, especially where there come to be concerns for patient safety. For the mentors, there are issues about responsibilities and role accountability.

Conclusions: This mentoring service was found to be potentially helpful to meeting needs identified through the appraisal process as it provides a clear formal network of help for doctors who find themselves struggling and are willing to address their educational needs.

4CC/14

Can doctors accurately estimate their performance on the GMC's fitness to practise pilot exams?

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Background: Doctors are expected to recognise strengths and weaknesses in their own clinical knowledge and practice. Evidence from the behavioural sciences has demonstrated the deficits in the ability to assess one's competencies. We investigated whether doctors could accurately estimate their performance on tests of minimal clinical competence.

Summary of work: Data was taken from 524 doctors who volunteered to take the GMC's fitness to practise pilot exams. During one day, volunteers completed a knowledge test and an OSCE. Afterwards, volunteers completed a questionnaire about how well they thought they performed. We compared volunteers' estimates with their actual scores.

Summary of results: Most volunteers significantly underestimated their OSCE performance. Whereas self-estimated knowledge test performance differed between high and lower performers. Those who did particularly well significantly underestimated their knowledge test performance ($t(196) = -7.70$, $p<0.01$) and those who did less well significantly overestimated ($t(172) = 6.09$, $p<0.01$).

Conclusions: Volunteer doctors were moderately accurate in predicting their knowledge test performance but less accurate in predicting their OSCE performance. Most volunteers did not appear to have an inflated view of their exam performance. However, roughly half of the sample did overestimate their knowledge test performance. This is potentially problematic as overconfidence in doctors is associated with poor clinical judgement and decision making. Medical educators should be cautious when using self-assessment to monitor doctors' professional development and consider whether formal training in accurate self-assessment is necessary.

Take-home messages: High and lower performers self-estimated differently on a test of theoretical knowledge but not on a test of practical and clinical communication skills.

4CC/15

Prescribing errors in general practice (family medicine) – implications for GP training

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Background: Five per cent of prescriptions issued by UK general practitioners (GPs) contain an error. Up to 1 in 550 prescriptions contain a serious error. The PRACtICe study (GMC, 2012) highlighted GPs-in-training as a cohort of prescribers who could benefit from further support. We conducted a follow-up study to investigate strategies to enhance prescribing in light of findings from the PRACtICe study.
Summary of work: Twelve focus groups were convened with various stakeholders including GP trainers, GPs in training, pharmacists and members of the public. Results from the PRACtICe study were presented and strategies to enhance the quality of prescribing training were discussed. Focus groups were recorded, transcribed and analysed for emergent themes using a constant comparison approach.
Summary of results: Preliminary analysis of data has highlighted several strategies to improve the quality of prescribing. These include the need for adequate induction to a practice's prescribing protocols, enhancing the prominence of prescribing in the GP Curriculum, the use of personalised feedback to GPs in training, and the development of user-friendly on-line learning packages.
Conclusions: Prescribing is key to the role of the GP, but as this task becomes ever more complex, strategies must be put in place to minimise prescription error. GPs-in-training are an 'at risk' group for the presence of prescribing errors. Enhancing GP training with respect to prescribing is necessary to equip the GPs of tomorrow to be safe practitioners.
Take-home messages: GPs in training have been highlighted as having specific prescribing educational needs – strategies to address these needs are vital to enhance patient safety.

4CC/16

Strengthening professional identity: the experience of Indonesian general practitioners

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Background: A better understanding of General Practitioner (GP)s' practice experiences could guide the development of meaningful strategies to improve those experiences, and ultimately the care they deliver to their patients. However, there are few studies about the socialization experiences and professional identity development of GP, and this is the first from a developing country. This study aims to generate an explanatory framework that could illustrate the structural, social and psychological process of the GPs' professional socialization and identity development.
Summary of work: A qualitative research methodology was applied in this study, in particular the grounded theory methodology. Primary data collected via interviews with 25 GPs in West Sumatra Indonesia. Participants were purposively sampled. Secondary data sought from related government and professional bodies' policy documents and social networks. The data was analysed in an iterative process, including inductive data analysis using constant comparative method, deductive and abductive thinking strategies.
Summary of results: Professional marginalisation was one of the main concerns of the GPs related to their professional practice experience. Our theoretical framework illustrates the interplay between contextual factors including health care policy and GP training, interactional and personal factors which contributed to GPs experience of professional marginalisation.
Conclusions: Professional marginalisation affected GPs' personal wellbeing and professional identity development by lowering GPs' self-esteem and self-efficacy.
Take-home messages: There needs to be a culture change where GPs can consider themselves as being distinguished, being useful, and being needed. Curriculum orientation in medical school and continuing professional development (CPD) programs needs to consider the professional development of GPs.

4CC/17

Educational Needs Assessment and Development of on the Job Training Program for ICU Nurses in Semnan Hospitals

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Background: Educational needs assessment and implementation of continuous educational programs based on these needs is very important for improvement of knowledge.

Summary of work: This educational planning study was consisted of two dependent phases to identify and prioritize educational needs of ICU nurses. Census considered as sampling method in both steps. Data gathering in the first phase from nurse managers and ICU attending physicians conducted by development of a closed ended questionnaire. In the second phase knowledge of nurses assessed by a multiple -choice exam and their skills and competencies evaluated by a specially developed checklist. Psychometric properties (reliability and validity) of both instruments evaluated and confirmed.

Summary of results: The most important special educational needs of ICU nurses in this study were as follows: A) Cardiac monitoring and ability to identify different dysrhythmias and how to manage life threatening ones (71.11%).B) To set and adjust ventilator parameters according to respiratory status of the patient (70.80%).C) Arterial blood sampling and ABGs interpretations (69/00%) .D) Basic and advanced adult CPR (66.66%).E) Maintenance of a secure airway; adequate ventilation and oxygenation and intubation if necessary (66.66%) . F) Planning, implementation and evaluation of skin integrity procedures (60.01%). G) Pharmacotherapy, safe administration of positive inotropic agents (e.g. Adrenalin, Atropine, Dobutamin,…) (57.90%) . H) Central venous pressure (CVP) monitoring and maintaining I.V fluid balance (52.22%).

Conclusions: Based on the results of this study it reveals that assessment of educational needs is the most critical step for any continuous educational program planning, and it is equally important that these identified topics according to their priorities and perceived importance be covered in the developed continuous educational package. Only in this way maintenance of the knowledge, skills and attitudes of the nurses to provide better health services in ICUs will be guaranteed.

4DD Posters: Teaching and Learning/Team-Based Learning
Location: South Hall, PCC

4DD/1
An evaluation between teaching techniques and level of knowledge in obstetrics and gynecology

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Background: Various methods of teaching are provided in the Department of Obstetrics and Gynecology including lectures, topic conferences, bedside teaching and operative obstetrics. A lecture is passive learning and has the least amount of knowledge retention. Topic conference is active learning and the student will have more knowledge retention. Bedside teaching is better than a lecture and topic conference because the student does the real thing.
Summary of work: Twenty-one Modified Essay Questions (MEQs) were given for assessment and evaluation in 417 fifth-year medical students at the end of the session. The scores of the MEQs were analyzed in accordance with the teaching techniques: lecture, topic conference and bedside teaching. The MEQs were standardized by teachers in the Department of Obstetrics and Gynecology and had no significant difference in Minimum Power Level (MPL).
Summary of results: Mean scores of the MEQs in lecture, topic conference and bedside teaching were 57.03, 58.49 and 61.27, respectively, and the percentage of medical students who passed an exam were 64.13%, 72.73% and 84.72%, respectively.
Conclusions: Bedside teaching is the best method of the teaching techniques because of the active learning and it permits a comparison between practice and theory.
Take-home messages: Among lecture, topic conference and bedside teaching, bedside teaching is the best teaching technique.

4DD/2
Beyond Conceptual Maps: Using Images to Assess And Evaluate Tutorial Processes

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Background: Concept maps, derived from the theory of meaningful learning in Ausubel have been adopted by many medical schools. Imagery map as language is intellectual technology adapted to current times of higher speed operation and synthesis. For Bachelard, "Science is the aesthetics of intelligence".
Summary of work: To report the experience of using imagery maps as a teaching-learning strategy. Students were asked to draw and use images associated to concepts about a weekly clinical case.
Summary of results: Initially, only students with a talent for drawing or other visual artistic expression showed varying formats and extremely creative imagery maps, showing themselves more motivated and recognized; later, others felt freer to explore their talents, demonstrating greater motivation to study and for setting concepts and contents. The imagery maps with its power of synthesis have for some greater acceptance. Others have developed maps that are too sentimental, as support for expressing conflicts, troubles and difficulties in the first college moments, allowing themselves to express beyond the learning objectives of the week. For these there is the simultaneity of psychosomatic symptoms and the possibility of speaking and listening in the group in which they are inserted.
Conclusions: The imagery map reveals artistic talents, arouses admiration and encourages learning. It also allows sublimation with elaboration of conflicts through art and culture.

4DD/3
Developing study guides for Integrated Curriculum: AJKMC Experience of GIT Module

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Background: The health care system has changed dramatically in the past four decades which compelled the changes in the training of health care workers. Medical students should be trained in a setting, reflective of actual practice. The present study was designed to disseminate our experience of Study Guide development and to evaluate its effectiveness.
Summary of work: AJKMC is the first public sector medical college in Pakistan that implemented integrated curriculum right from its start. The college has a heterogeneous group of senior faculty. Considering the global changes and local health care needs, the leadership of the college decided to design, develop and implement integrated medical curriculum. A six step approach of Kern et al was adopted to define the needs. Multidisciplinary team of relevant specialties were

constituted to brainstorm, discuss and negotiate, and generate consensus on thematic core contents of the GIT module. The learning outcomes were linked to the themes in the domain of knowledge, skills and attitude. The authors were the core members of the module team. Study guide was provided to faculty and students prior to the start of the module.

Summary of results: The outcomes of the module were analyzed by a mixed method approach, involving quantitative and qualitative methods. Students and the faculty showed complete satisfaction on the roadmap provided by the study guide during learning process of GIT module and students suggested to continue the GIT module with iterative loop of annual retreat of curriculum with changing needs of students and society.

Conclusions: Integrated medical curriculum is the need of the day and quite possible in a resource constrained environment like Azad Jammu & Kashmir.

Take-home messages: Study Guides provide road map to learning; however, they should be developed indigenously.

4DD/4
Should students generate their own schemas or use an expert's? Evidence from a randomized trial

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Background: Although instruction using expert-generated schemas is associated with higher performance, implementation is resource intensive. Learner-generated schemas are a less resource intensive alternative, but may be limited by increased cognitive load. We studied the effect of learner-generated schemas on diagnostic accuracy, cognitive load and discriminating knowledge.

Summary of work: Fifty-seven pre-clerkship students participated in a crossover design where students used an expert-generated schema to solve one set of ECG rhythms and learner-generated schema to solve a different set of ECG rhythms during a practice phase. Learning accuracy and cognitive load were measured during the practice phase. Testing of discriminating knowledge and diagnostic accuracy followed in the testing phase. Delayed testing occurred 1-2 weeks later.

Summary of results: Diagnostic success was lower in the practice phase (mean difference=23%, p<0.001) with a learner-generated schema, however there was no difference in the immediate and delayed testing phases (p=0.301; p=0.129). The use of an expert-generated schema was associated with higher performance on discriminating knowledge on immediate and delayed testing (mean difference=12%, p=0.008; mean difference=7%, p=0.009). Cognitive load was higher

when students developed their own schemas (mean difference=18%, p<0.001).

Conclusions: Students who generated their own schemas performed no differently on tests of diagnostic accuracy despite reporting higher cognitive load.

Take-home messages: Generating a schema increases learners' cognitive load and is associated with lower practice but similar immediate and delayed testing performance compared with providing an expert-generated schema.

4DD/5
Teach-learning strategies used in health undergraduate courses: the standpoint of teachers and students

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Background: The development of specific skills through learning techniques and concepts is directly related to the effectiveness of teach-learning strategies. Teaching practices at the university level must necessarily contemplate the complex and multifaceted nature of reality in which the health professionals will develop their performance.

Summary of work: This study aimed to identify teach-learning strategies used in undergraduate health courses at FMRP-USP and the perspective of students regarding their learning experience. It was developed through two stages: (A) nineteen teachers were approached about teach-learning strategies (semi-structured questionnaire, exploratory approach, quantitative); (B) eleven students participated in two focus groups about their learning experience (content analyses, exploratory approach, qualitative).

Summary of results: Regarding teaching strategies, the traditional ones were cited as the most frequently used: lecture (100%), discussion groups (63%), discussion of clinical case (47%), PBL (26%), distance learning (15%). Over the evaluation strategies, the same trend repeats itself. Concerning students, qualitative content analyses allowed us to understand that they appreciate the student-teacher relationship, the teacher's ability to establish connections between the classroom and the professional reality, as well their mastery of content.

Conclusions: Among teachers it was possible to identify the discrete emergence of active methods. However, work overload reported by teachers hampers their investment in active methodologies. Among students,

the most interesting finding concerns the understanding that the higher interaction between teacher and student, the better the class.

Take-home messages: Education is a relationship between people. Investment in learning techniques and concepts cannot be greater than the investment in human interaction between teachers and students.

4DD/6
Following Christopher Langdell's steps

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Background: In 1870 Langdell introduced in Harvard, as an alternative to lectures, the Case Method, based on the study of real problems where students reach their own conclusions. At the beginning it was not accepted, but with time it proved to be the best. In 2010, as Physiology Course Director I followed Langdell steps.

Summary of work: In 2010 we started to use the case method instead of lectures two to three times a week. At the beginning it was rejected by students, who found more comfortable to sit and listen to lectures than to discuss a case that required its previous study. After a while students understood the benefits of this method and asked for it daily.

Summary of results: Students found that through this method they were able to apply their knowledge to solve medical problems, which was more useful than just the memorizing of facts. Nowadays the course consists of the discussion of 60 cases.

Conclusions: Every change is difficult and even more when it moves students from a comfort zone to one where they must work hard. Medicine students want to solve medical problems and the challenge of solving a case is a great motivation to study. Case method is the best alternative to teach medicine introducing students in solving cases even in basic sciences.

Take-home messages: If a medicine student is going to solve medical problems in his/her future professional life, they must learn to do it from the very first day in the medicine school.

4DD/7
Arterial blood gas interpretation: a new tool helping students to get it right

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Background: Arterial blood gases (ABGs) are important in the assessment of acutely unwell patients. It is vital that clinicians are not only able to obtain these samples, but also able to interpret the results. In the UK, this is part of the postgraduate curriculum. However, both medical students and qualified doctors struggle interpreting complex 'real life' gases.

Summary of work: A novel wheel was designed to reinforce common methods of arterial blood gas interpretation and to check answers. The tool was evaluated by year 5 medical students, refined from their feedback and used to support teaching with year 3 medical students.

Summary of results: Feedback from year 5 students was extremely positive: 93% rated the tool as ≥7/10 for its utility in reinforcing methods used in interpretation. 100% stated they would use it to check their answers. Year 3 students also found it beneficial.

Conclusions: Doctors must be competent in interpreting results of simple investigations to ensure patient safety. Arterial blood gases are performed frequently in acutely unwell and deteriorating patients and rapidly provide useful information to clinicians. It is essential that these are interpreted efficiently and accurately. Current literature suggests that this is not the case; any tool that assists in training should be welcomed.

Take-home messages: The ABG wheel is a useful tool. It is liked by medical students and can be used routinely when teaching methods of result interpretation and also for students to independently self-test.

4DD/8
Lecture course at the Department of General and Clinical Pathology using the module approach to the curriculum organization

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Background: Principles of education based on the module approach have been applied at the Department of the General and Clinical Pathology of Samara State Medical University since 2009. Recognizing the importance of students' motivation to the study of basic sciences, we have provided some reforms in the lecture course.

Summary of work: We studied if these reforms in the lecture course on the topics of pathologic anatomy are useful for improvement of medical education.

Summary of results: What was changed in the course of lectures? Main features are: we change the contents of lectures and use the new forms of delivery of lectures - "lectures – discussions", "binary lectures"; the lectures delivered by two lecturers on one and the same theme help students to see the problem more deeply and to impress it on them; two or three lectures in the academic year are given by invited professors; we have begun to use workbooks for the lectures, where on one part of the list some information is already printed and on the another part of the list the students can make notes of their comments and analysis of clinical problems.

Conclusions: Students accept very positively this kind of studying. The usage of workbooks has improved the effectiveness of the comprehension of the lecture material, and incorporated into the lecture an active process of learning. Moreover the motivation of the teaching staff was increased through this method.

Take-home messages: Our experience of an active lecture course using the module approach to curriculum organization seems to be very useful in medical education progress.

4DD/9
Learning benefits of Interactive Spaced Education in undergraduate medical students

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Background: Interactive Spaced Education (ISE) is a teaching tool consisting of two components: the assessment component, composed of multiple-choice questions and/or short answers, and the educational component, which provides immediate feedback to the student's answer, and a brief explanation of the topic. The aim of this study was to assess the improvement in pulmonology learning of undergraduate students at a university in Northeast Brazil.

Summary of work: A randomized trial involving 91 fourth-year medical students was conducted in 2012. After a cognitive pretest with 20 multiple-choice questions, participants were emailed an ISE covering eight topics (smoking, asthma, chronic obstructive pulmonary disease-COPD, pneumonia, pulmonary embolism, pleural diseases, lung cancer, respiratory failure) twice a week for 12 weeks. Participants, all of whom were enrolled in the pulmonology discipline, also received the contents by the conventional method. After twelve weeks, the students were submitted to a cognitive posttest identical to the pretest. According to the answer percentage, subjects were divided into two groups: G1 - answered 50% or more ISEs and G2 - answered less than 50%. Statistical analysis compared the mean scores obtained in the two groups using the Mann-Whitney test.

Summary of results: The G1 and G2 had 60 and 31 students, respectively. Cognitive knowledge assessed by the pretest was similar between groups. Cognitive performance showed a statistically significant improvement in G1 (7.35 ±1.11) compared to G2 (6.60±1.31), p = 0.015.

Conclusions: We concluded that ISE improved the pulmonology learning of fourth-year medical students.

Take-home messages: It might be a useful option for increasing cognitive ability in undergraduate medical students.

4DD/10
Peer assisted learning is effective for the education of undergraduate medical students and tutor competency influences the effectiveness of such sessions

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Background: Peer Assisted Learning (PAL) has been used for many years to teach scientific information to undergraduate students. PAL is gaining prominence in many medical schools and this study aimed to determine a) whether PAL can be effective in a clinical environment and b) whether tutor competence impacted on the effectiveness of PAL.

Summary of work: 410 first-year medical students were taught clinical skills in small groups by volunteer tutors from clinical years. Tutees completed a questionnaire focussing on tutor competency, session content and tutee learning outcomes. A 4-point Likert scale was used to classify responses. Free text was obtained and analysed for recurring themes.

Summary of results: An improvement in confidence in performing clinical skills was reported by 93% of tutees. 98% felt that PAL teaching was useful and pitched at the right level. 96% of tutees received constructive feedback and identified areas for improvement. Free text comments confirmed that tutees perceived sessions to be of high quality. Competency of peer-tutors was associated with improved history taking skills (r=0.31,p<0.001) and communication skills (r=0.34,p<0.001). Free text comments confirmed that competent tutors were more likely to deliver useful teaching sessions.

Conclusions: This is the first study to report that PAL is a beneficial and effective method of teaching first-year medical students in clinical scenarios and that the competency of peer-tutors is likely to influence the effectiveness of PAL.

Take-home messages: PAL is a useful method of improving the confidence of medical students in performing clinical skills and that competent peer-tutors are more likely to deliver effective teaching session.

4DD/11

Peer-Led Workshops: A Novel Approach to Teaching Core Clinical Data Interpretation to Students

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Background: Clinical data interpretation skills often fall outside the remit of formal teaching, and are usually acquired in opportunistic, informal ward-based teaching sessions. Despite the obvious benefits of this practical and context-rich approach, inconsistencies in quality and timing put some students at a disadvantage. We conceptualised an evening of peer-led workshops, available to medical students early in their first clinical year. The aim was to introduce skills required to interpret core clinical data: electrocardiograms (ECG), chest radiographs (CXR) and three blood tests - full blood count (FBC), urea and electrolytes (U+E) and liver function tests (LFT).
Summary of work: Each topic (ECG, CXR, FBC and U+E/LFT) was allocated to a pair of medical students in their second clinical year. These pairs rotated around groups of 25 students to present a 30 minute interactive, case-based workshop using power-point presentation. Feedback was compiled using a questionnaire featuring eight questions pertaining to the quality and clinical relevance of the sessions. Responses were measured using a six-point Likert scale ranging from 'very poor' (1) to 'excellent' (6).
Summary of results: Every workshop received very positive feedback, particularly in the domains of quality and clinical relevance. Students reported each workshop had significantly improved their understanding of the topics, whilst tutors perceived the experience as beneficial in improving knowledge and building confidence.
Conclusions: Our peer-led workshop successfully introduced key skills of core clinical data interpretation to first year clinical students.
Take-home messages: This unique approach offered an effective grounding in data interpretation skills, alleviating the dependence on informal, sometimes unpredictable ward-based teaching. Such an approach could easily be replicated in other medical education initiatives.

4DD/12

Can the Team-Based Learning approach replace student reports and motivate students in practical works in medical genetics?

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Background: For final evaluation total student scores were calculated from results of the IRATs and individual student report and presentation assessment. The quality of individual reports and presentations has not always been satisfactory. Consequently we transformed them into a more active type of learning.
Summary of work: In 2012 we replaced individual reports by the TBL-strategy. TBL groups consisted of 6 students randomly assigned to perform GRATs with multiple choice questions, review questions and open-ended problems. Topics were disclosed 7 days ahead for out-of-class preparation. Teachers evaluated GRATs and awarded points for answers. Class groups competed for points and small gifts after final scoring. 139 students completed an individual survey to assess their attitude to the TBL.
Summary of results: As learning strategy for medical genetics, the TBL resulted in high student satisfaction: 78.5 % of students assessed the TBL approach as excellent, 20.7% as very good, 0.8% as good and nobody evaluated it as unsatisfactory. Students acknowledged that the TBL encouraged them to study regularly, practise team-work and allow them to actively learn from tutors. All this served them to improve their own exam performance.
Conclusions: We found that the TBL strategy in teaching and evaluation of medical genetics allowed us to establish an active learning environment that improved students´ performance and encouraged deeper discussion of course material. Preliminary data suggest that students performed better on subsequent examinations.
Take-home messages: In practical work, TBL is a valuable teaching tool. The students recommend using this method for other topics.

4DD/13

Comparison between Team-based Learning and Lecture-based Learning in Nephrology courses for Medical Students in Udonthani Medical Education Center

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Background: In the past decades, the learning methods for medical students in Thailand were based on lecture-based learning (LBL). But in the last few years, the learning methods have been changed into active learning. Team-based learning (TBL) is a student-centered learning strategy. TBL is used in many medical education centers in Thailand but this strategy has never been used in department of Medicine in Udonthani medical education center.

Summary of work: TBL and LBL method were used in teaching about "Electrolyte disturbance" topic. TBL session consisted of 3 phases. Phase 1: students studied the assigned sheet before attending the class. Phase 2: students were tested with an individual readiness assurance test (IRAT) and then they were assigned into groups and retook the same test and made the consensus of the answers. Finally, students were examined with posttest. In LBL group, students were examined with pretest and posttest. After cessation of each class, students in both groups completed the same questionnaires to evaluate satisfaction.

Summary of results: 51 medical students were enrolled. 28 students were in the TBL group and 23 students were in the LBL group. The learning outcomes were significantly improved in both groups according to IRAT and posttest scores in TBL group (p<0.001) and pretest and posttest scores in LBL group (p<0.001). The posttest scores were not significantly different between both groups (p=0.56). The levels of satisfaction were higher in TBL group and included valuable experience (p<0.001), comprehension of the course material (p=0.004), improvement in problem solving skill (p=0.001) and knowledge gain (p=0.006).

Conclusions: TBL was an effective learning strategy that improved learning outcomes equal to LBL. But TBL resulted in high medical student satisfaction.

4DD/14
Assessment of the effectiveness of team based learning in Pathology

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Background: We worked on this project to increase the awareness and value of team-effort and to motivate students to self-learn and augment problem-solving acumen.

Summary of work: TBL is used at end of each session of didactic lectures. It starts with group selection which is random and unalterable. Each session begins by asking 10 case based questions, which students' answers online individually. Following this activity they assemble in a group and re-answer same questions as a team and self-grade using a self-scoring scantron.

Summary of results: Student felt TBL is effective. They could understand their mistakes while discussing the

question in a group and also learned how to solve a case. Some of them made new friends. Long-term improvement was noted among 43%.

Conclusions: Real-time feedback motivates students to put in more effort to learn. Group discussions help students to look at a concept from different perspectives and learn value of team efforts. TBL is an effective method in a highly condensed and concept based course like pathology.

Take-home messages: Medical care is not delivered by an individual; rather by a trained team. It provides students an opportunity to coach others the methodology of learning, and take an active role.

4DD/15
Comparison of the effectiveness and satisfaction between lecture based and team based learning program of medical students in gynecology

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Background: To compare the knowledge gain and satisfaction of learning between the lecture based and team based learning program.

Summary of work: The students were divided by stratified sampling into two groups, one received the lecture based learning program and the other received the team based learning program. The two groups of the students were tested by fifteen topics multiple choices examinations. Five points score of satisfaction of learning were evaluated by the students.

Summary of results: 1) Posttest score was statistically higher than pretest score in both learning programs (p < .01); 2) The pretest scores comparing between lecture based group and team based group showed no statistical difference and also with posttest score but the posttest tended to show significant difference; 3)The scores of the satisfaction between both groups were statistically different in team skill, team communication, team unity and readiness assurance (p < .05 and p < .01) but showed no significant difference of satisfaction scores in knowledge, verbal communication, group responsibility, timing and data support from teacher.

Conclusions: There was no difference of knowledge gain between the lecture based and team based learning program. Team based learning had more satisfaction scores than the other in skill, communication, unity and readiness assurance.

Take-home messages: There was no difference in knowledge gain between the lecture based and team based learning program. Further large sample size and well designed research is required.

4DD/16
Does active participation in TBL promote individual learning?

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Background: Team-based learning (TBL) is a learner centered teaching strategy designed to   promote active engagement and deep learning. Our research question is whether contribution to a team is correlated to the score of the final examination in TBL.

Summary of work: One hundred and one 5th grade medical students in our university had the first TBL class of general internal medicine. We used a response-analyzer "LENON" (Terada Electric Works Co. Ltd.) which can analyze class member's opinions "face to face" in real time and have a function of "PC Scratch Card". We analyze the relationship between an extent of participation in a group and individual score on the final examination.

Summary of results: The degree of participation and discussion in a group are closely related to individual understanding of clinical reasoning (p<0.01). iAPP (individual application) is not correlated with tAPP (team application). tAPP, but not iAPP, is related to proportion of participation (p<0.05), but iAPP.

Conclusions: Our result indicates the score of the final examination is related to individual understanding of clinical case rather than group activity.

Take-home messages: In addition to participating and working well with others, improving their ability to apply important concepts should be carefully designed in TBL session.

4DD/17

A feedback model to promote both educator's teaching strategy and learner's learning effectiveness of Team-Based Learning class in a hybrid course

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Background: Team-based learning (TBL) was introduced into our college because of medical educational reform. In our department, we used a feedback model, including quantitative feedback: course design, learning goals, self-learning, group interaction, learning effectiveness and qualitative feedback on influential factors: educator's preparation and MCQs discussion, hand out material, MCQs design, group interaction, to accelerate TBL class incorporated into a hybrid course.

Summary of work: Quantitative data was collected by using immediate response system (IRS) from 1 (the worst) to 5 (the best) and qualitative data was collected by learner's feedback freely right after the class. According to the result of feedback model, we adjusted the course and the structure of TBL class of the second and the third year. We compared the data by unpaired t-test and Chi-square test.

Summary of results: TBL was introduced into two topics (2/10, 20%) in the first year, one topic (1/10, 10%) for the second year and two topics (2/10, 20%) for the third year. The outcome of the first year and the third year were compared and had significant improvements: course design 3.5 VS 4.7, learning goal 3.4 VS 4.6, group interaction 2.5 VS 4.7, self learning effectiveness 3.2 VS 4.6 and learning effectiveness 3.1 VS 4.7. Qualitative feedback data of influential factors indicated that educator's preparation and MCQs discussion played an import role about learner's learning effectiveness of the TBL class (P<0.05).

Conclusions: A feedback model helped us to verify the insufficient area of influential factors, improved our teaching strategy and promoted our incorporated TBL class into a hybrid course.

4FF ePosters: Clinical Assessment and the OSCE
Location: North Hall, PCC

4FF/1
R-C-T or ethics? How to assess a rater-training for OSCE without discriminating against students

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Background: To prove effectiveness of training a R-C-T is the best design to conduct. In the case of rater-training of summative OSCEs there is an ethical reason for not conducting R-C-T in the assessment process. Furthermore it is rather expensive to implement an OSCE just for testing the effectiveness of rater-training. Several authors such as Bloch & Norman (2012) or Tavakol & Dennick (2012) use G-theory to analyze OSCE-data. In the sense of training effectiveness G-theory seems to be a solution as well. Effective rater-training should amongst other facets increase the explained variance of stations.
Summary of work: During a summative 12-station OSCE with 5 rounds assessors and simulation patients rated 114 students using the Berlin Global Rating Scale (BGR, Scheffer, 2009) as a formative tool for communicative competencies. All of the 26 simulation patients were trained one hour to rate the BGR. 19 assessors got a short briefing to the BGR and 20 assessors missed the training. To validate results they rated additionally one multiple true-false-item (history taking). We used G-theory to analyze data.
Summary of results: When no training or short briefing is conducted 0-6% of variance was explained by station. Most variance (17-35%) is explained when no training is necessary as shown by e.g. the history taking item. Conclusions: G-theory is a possible way to show effectiveness of rater-training without conducting a R-C-T. Further analyses are needed to explore this methodology.
Take-home messages: See G-theory as you didn't see it before!

4FF/2
The effects of role-player-candidate interactions on fairness in the Clinical Skills Assessment

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Background: The Clinical Skills Assessment (CSA) is a high stakes licensing examination for UK General Practice. It is an OSCE style exam comprising a simulated surgery of 13 cases. In common with other postgraduate examinations, the CSA has differential pass rate between some subgroups of candidates, particularly between international medical graduates (IMGs) and UK trained graduates (34.7 v 90.1% pass rate). Some candidates who fail allege that the CSA is unfair due to roleplayer bias towards them.
Summary of work: An observational study of roleplayer performance, using a semi-structured observation tool was conducted during the Spring 2013 assessments. Video recordings of consultations identified by individual assessors as showing possible roleplayer differences were analysed in more detail by groups of assessors to establish whether there was agreement that there had been a genuine difference in roleplayer performance, whether it affected the subsequent roleplayer-candidate interaction and the overall challenge of the case.
Summary of results: 461 consultations were observed. 66 consultations were reviewed on DVD. Initial results suggest that 25 consultations (5.4%) appear to demonstrate significant differences in roleplayer performance. These differences do not appear to be related to ethnicity or gender characteristics of the candidates, and most commonly appear to be a form of 'saving' behaviour.
Conclusions: Variations in roleplayer performance between candidates can largely be explained by variations in candidate's performance.
Take-home messages: There is no evidence of systematic bias by roleplayers towards any candidate subgroup in the CSA.

4FF/3
360-degree evaluation of residents on communication and Interpersonal skills: Inter-rater variation in judgment

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Background: Effective communication and interpersonal skills are key components for the optimal performance of any health care professional. To perform an assessment of residents' performance, particularly with respect to their communication and interpersonal skills, and to identify potential areas needing improvement,

we conducted 360 degree evaluations of residents as a novel step in our setting.

Summary of work: A cross-sectional survey of 49 residents. Using a 360 degree evaluation technique, every resident was evaluated by eight other co-workers .A self-evaluation was also completed. The data was analyzed using SAS version 9.1. Analysis of Variance (ANOVA) was employed to test for differences in mean scores, both for rater type and residency year.

Summary of results: We received a total of 367 completed forms for the 360 degree evaluations (response rate of 83.2%). There was a significant effect attributable to rater type (F=5.2, p<0.01). There were significant differences in mean ratings (p<.05) between the unit staff (M=6.2, SD=1.3) and self evaluations (M=5.4, SD=1.0), and unit staff and nurses (M=5.4, SD=1.3). There was tatistically significant difference between the ratings by the nurses and the faculty (p<0.01). The mean resident self-assessment scores were significantly lower than those provided by faculty (p<0.01).

Conclusions: The 360 degree evaluation technique is effective for measuring the communication skills of trainees. Individuals who interact with trainees on a regular basis can provide meaningful judgments of their abilities. A diverse group of raters provides different angle perspectives based on their variable interaction with the trainees.

Take-home messages: 360 degree evaluation technique is an effective tool to assess communication skills.

4FF/4
MasterCase or MasterChef?

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Background: Long Case MasterClass is an innovative one day educational program which covers the basic clinical skills in the medical consultation. It is part of a broader program called "CASE: Clinical Approach to Structured Examinations" to assist Year 3 medical students prepare for their medical long case examination.

Summary of work: The program has been developed to assist students to develop good specific clinical skills in a structured approach. At the end of the day the 2 medical students who score the best in the specific skills sessions are challenged by performing a long case and then presenting the long cases to 3 judges. The winner is crowned Long Case MasterClass Champion!

Summary of results: Topics: History in the making - History Taking; Let's get physical! - Physical Examination; What's your problem? - Problem Listing: Problem Identification and Prioritising; Dr House - Diagnostic dilemmas - Symptoms and Signs: Differentials; Testing times – Investigation; My Management Plan – Management Plan; Perfect Presentations – Presentation; Let's talk about SEX – Discussion.

Conclusions: Students are driven the strongest by assessment and the need to find a number of teaching methods and resources to support their learning. Having some fun along the way is also important.

4FF/5
Examining the function of Mini-CEX as an assessment and learning tool: factors associated with the quality of written feedback within the Mini-CEX

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Background: The Mini Clinical Evaluation Exercise (Mini-CEX) has been implemented as a means of providing feedback in undergraduate medical education, despite limited evidence to support its use in prevocational training. This study was aimed to examine factors associated with quality of written feedback provided during the Mini-CEX sessions.

Summary of work: Assessment forms collected from 1427 Mini-CEX sessions in a large Australian medical school were analysed. The written feedback, both on students' strength and suggestions for development, was categorized and related to the ratings of clinical performance, clinical case complexity and assessors' clinical position.

Summary of results: There was a relationship between type of feedback and assessors position, e.g. consultants were more likely to give specific feedback ($\chi2=34.72$, df=9, p< .01, z=2.2). The higher the clinical case complexity, the more likely for feedback to be provided ($\chi2=17.48$, df=3, p< .01, z=-3.2). The scores on 7 domains of clinical performance were intercorrelated (r=.59 to .79). Higher scores were less likely to be associated with specific feedback (r=-.22 to -.28). The quality of written feedback is influenced by the assessors' clinical position and clinical case complexity. The lack of variation between domain scores may indicate that Mini-CEX is not making fine distinctions in specific areas of clinical performance.

Conclusions: Standardization of Mini-CEX assessors and adequate exposure to various clinical cases with different complexity are required to improve the quality of written feedback.

Take-home messages: Assessors' position and clinical case complexity are shown to be two influential factors on feedback in the Mini-CEX.

4FF/6
Assessing the Long case based on SLICE (Structured Long Interview And Clinical Examination): an Action Research Approach

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Background: OSLER is a valid and reliable tool to assess long case. In our local settings in undergraduate examination, examiners are not used to structured long case assessment. A single examiner has to assess at least 15-20 students for a long case in duration of 02 hours. To meet our objectives, we needed a tool which was tailor made for the local needs.

Summary of work: An action research approach was used. The problem of lack of structured examination in long case was identified. OSLER was found to not cater for the needs in the local context. It was felt that more time was required to train the examiners to conduct OSLER and complete the long case assessment in specified time. Hence focus group discussion and interviews were held with the senior faculty and medical educationists to come up with a modified tool named SLICE.

Summary of results: SLICE was used in assessing Long cases and was found to be a feasible, valid and reliable tool. It was also found to be easier to be taught to the examiners.

Conclusions: OSLER is a very good tool to assess Long case; however with its modification and rewriting, an instrument was developed which had better feasibility and applicability in the local context.

Take-home messages: Modifications/changes may be required for the established tools so new or modified tools can be designed to keep the soul and spirit of the structured and systematic examination alive.

4FF/7
Student-led mock clinical assessment successfully prepares medical students for their first OSCE

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Background: The first objective structured clinical examination (OSCE) can be a daunting experience. Sheffield Medical Society (MedSoc) organise a mock OSCE for third year students. We surveyed the 2012 mock OSCE in order to assess its effectiveness.

Summary of work: The mock examination was written and organised by senior students; all patients and examiners were trained student volunteers. The exam consisted of eight 8-minute stations: 6 minutes for the history and examination followed by two minutes for questions and individualised feedback (including mark schemes) from the patient and examiner.

An online questionnaire was distributed to third year students at three separate time points: before and after the mock OSCE and after the real OSCE. Students were asked to rate on a 5-point Likert scale in eight domains, including time management and overall preparedness. Statistical analysis was by paired and unpaired t-tests as appropriate.

Summary of results: The mean overall level of preparedness before the students sat the mock OSCE was 2.60 ± 0.13 (n=126), improving to 3.61 ± 0.15 (n=75) after the mock OSCE (p<0.0001) and 4.21 ± 0.19 (n=58) after the real OSCE (p<0.0001).

Conclusions: We found that the peer-organised mock OSCE prepared students well for the real OSCE. Whilst there was a statistically significant improvement in all domains, students found the mock particularly useful for familiarising themselves with the type of questions asked and the marking process used in the OSCE.

Take-home messages: Student-organised mock clinical assessment successfully prepares medical students for their first summative OSCE.

4FF/8
Giving Feedback after the OSCE

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Background: At the Charité-Universitaetsmedizin Berlin OSCEs are used for high stakes examination. Performance of skills is scored by a checklist, communication skills by a set of global ratings [Scheffer et al. 2008].

A preliminary evaluation study indicated that students were neither considering the standard report nor the assessor`s feedback as useful. Written comments particularly asked for more detailed information on their performance. We looked for a possibility to provide an enhanced report, while omitting the obstacles of immediate assessor feedback and without publishing the checklist items. The procedure needed to integrate smoothly in our routine data processing and psychometric analysis. Moreover, it had to be appropriate for the criterion referenced nature of our OSCEs.

Summary of work: Our aim was to give detailed feedback on individual performances on the particular tasks within each OSCE station. Hence, we generated between 1 and 4 itemsets per station, mapping each

item to a corresponding task within the station. We chose the median as measure of central tendency and classified task performance as "insufficient", "doubtful", "sufficient" and "well done". Data preparation, analysis and report generation was done using free, open source software. Style was aligned to the feedback of the Progress Test Medizin, well-known by our students.
Summary of results: The enhanced student report adds information of individual achievement on both stations and tasks. In addition, it presents average peer group performances.
Conclusions: Implementation of an enhanced report of results is feasible. Acceptance is being evaluated at the moment.
Take-home messages: Providing a detailed student report of the OSCE is feasible.

4FF/9
Objective Structured Clinical Examination for Post-Graduate Training

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Background: One-year post-graduate (PGY) training has been implemented in Taiwan since 2011. The training course consisted of internal medicine for 4 months, surgery for 2 months, community medicine for 2 months and emergency medicine, pediatrics, obstetrics and gynecology (OBS/GYN), elect course for 1 month respectively. In the meantime, objective structured clinical examination (OSCE) is included into the national board examination since 2013. To assess the performance of the resident trainees, objective structured clinical examination (OSCE) was implemented.
Summary of work: A committee was responsible to prepare OSCE, which is different from the national board examination for medical students. OSCE for PGY is designed with longer time, more tasks and more complicated situation for every station. The PGY trainees were asked to do more clinical reasoning, decision making and more precise physical examination. This is a formative assessment accompanied by feedback in every station.

Summary of results: We have developed 12 stations of OCSE with reliability and validity analysis and conducted a 9-station OSCE for PGY. We found the PGY trainees are familiar with OSCE. The OSCE performance was correlated with the evaluation of their mentors. We also found the PGY trainees could not handle the psychiatry patients well. This phenomenon alerts us to modify the training course.
Conclusions: OSCE could provide important information not only for PGY learning but also the training curriculum.
Take-home messages: OSCE could be a good formative assessment for PGY. OSCE could provide information for training curriculum improvement.

4FF/10
Does experience of public performance relate to students' results in the OSCE examination?

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Background: Personal qualities have been shown to affect students' exam results. We studied the effect of experience, and level, of public performance in music, drama, dance, sport, and debate (MDDSD) at the time of admission to medical school as a predictor of student achievement in their first OSCE examination.
Summary of work: A single medical school cohort (n=265) sitting their third year clinical exam in 2011 were studied. Pre-admission statements made at the time of application were coded for their stated achievements in the level of public performance; participation in each MDDSD area was scored 0-3, where 0 was no record, 1 = leisure time activity, 2 = activity at school or local level, 3= activity at district, regional or national level. These scores were correlated to OSCE results by linear regression and t-test.
Summary of results: There was a bell shaped distribution in performance score in this cohort. There was no significant linear regression relationship between OSCE results and overall performance score, or between any subgroups. There was a non-significant trend for students who failed the OSCE exam to have lower performance scores than students who passed or achieved excellent results. (p=0.50, 0.46 respectively)
Conclusions: We found no compelling evidence that experience of public performance and level of excellence in the MDDSD areas were related to OSCE results. These areas are often seen as enrichments to secondary education, and used as surrogates for desirable qualities in demanding courses such as medicine.

Take-home messages: Other factors seem more important in accounting for variability in OSCE results.

4FF/11

Assessing the Validity of a Multidisciplinary mini clinical evaluation exercises (mini-CEX): a Comparison to a Multidisciplinary OSCE

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Background: The mini-CEX is a workplace-based tool designed to assess competency based on direct observation. As with any assessment tool, it is important to collect validity evidence. Although some evidence associated with the mini-CEX has been reported, the purpose of this study was to gather further validity evidence by comparing student performance on the mini-CEX to their performance on other examinations.
Summary of work: Data from clinical rotations for third-year medical students was collected. Each mini-CEX form included six items and a global rating. The average rating of items on the forms (mean-items) was calculated for each mini-CEX form, as well as the mean score for the global rating (mean-GR). Using correlations, mini-CEX ratings were compared to scores on two multidisciplinary Objective Structured Clinical Examinations (OSCEs) and five written clerkship exams.
Summary of results: There were 1262 mini-CEX forms available for analysis from 147 students. Correlations between the overall OSCE scores and the mini-CEX were 0.30 to 0.34 (mean-items) and 0.30 to 0.35 (mean-GR), respectively (p<0.01). Correlations between the communication component of the OSCE score and the mini-CEX were 0.26 to 0.30 (mean-items), and 0.33 and 0.36 (mean-GR), respectively (p<0.01). Correlations between the mini-CEX and two of the written exams were significant: family medicine 0.21 and surgery 0.22 (p<0.01).
Conclusions: Student performance on the mini-CEX is significantly correlated to multi-disciplinary OSCEs, but not consistently with written exam scores.
Take-home messages: This study provides further validity evidence for the use of the mini-CEX as a clinical skills assessment tool.

4FF/12

Evaluating trends of students' performance and quality of an OSCE: Three years of experience in Tehran University of Medical Sciences

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Background: Until 2009 all medical students in Tehran University of Medical Sciences had to take a comprehensive written examination before internship. An OSCE was added in 2009 to fill the gap of clinical skills assessment at this stage. We aimed at evaluating the educational impact of these OSCEs by checking if students' scores have improved over these years.
Summary of work: To compare students' score over the years, 6 station categories were defined. The candidates' scores in each category were calculated and trends over years were evaluated.
Summary of results: Six OSCEs each comprising 11 to 14 stations have been held for a total number of 945 candidates. The range of mean scores were 49.11 (±7.92) to 67.48 (±7.82) with a pass rate of 48.1% to 98.4%. The Cronbach's alpha ranged from 0.52 to 0.71. During these years, range of mean scores in categories of history taking, physical examination, communication skills, performing procedures, diagnosis, and patient management were 50.27 to 64.37, 49.10 to 73.86, 31.29 to 66.56, 25.86 to 70.67, 33.18 to 65.80, and 41.45 to 61.45, respectively.
Conclusions: As illustrated in scores and pass rates, students' performances in most categories have improved during this period of time. This may be attributed to the fact that establishment of this exam drew the attention of students towards the importance of clinical skills, a desirable educational impact.

4FF/13

Use of objective structured clinical examination for evaluation of medical student communication skills

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Zhanagul Bekbergenova (Astana Medical University, General Medicine Department, Astana, Kazakhstan)
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Background: Communication skills are an important professional competence for physicians. One method to evaluate the communicative competence of the student is to conduct objective structured clinical examination (OSCE) involving standardized patients (volunteers).

Summary of work: According to the State educational standards of Kazakhstan, the 5th year students (specialty "General Medicine") have to pass a two-stage exam in the end of clinical subjects study. This exam consists of integrated testing and skills evaluating by OSCE. Subject "General practice" includes four modules: "Internal Medicine", "Childhood diseases", "Obstetrics and Gynecology", "Surgical diseases". Skills evaluation was made at 10 OSCE stations. We involved "standardized patient" (volunteers, 6th year students). The analysis of these stations will allow us to analyze the level of communication skills of students. Students who have passed the exam, completed an anonymous questionnaire evaluating OSCE and their communication skills.

Summary of results: We analyzed 51 questionnaires. Analysis of the questionnaires showed that 4% of the students mentioned unfriendly volunteers, 27% - wrote that it was difficult to take medical history, 2% - unfortunately, have never faced such situation, 12% - said about improvement of the volunteers communication skills. Only 10% of examinees decided that OSCE doesn't develop their communication skills, 24% said some stations that have caused them some difficulties. However, the students themselves admitted their poor communication skills.

Conclusions: OSCE with volunteers and systematic feedback from both students and the volunteers can improve and assess the communicative competence of students. Analysis of the questionnaires showed that the students self-critical attitude to their communication skills, and recognize the need for their continuous improvement.

Take-home messages: Use of OSCE gives possibility to achieve an objective, unbiased assessment of the knowledge and skills of students, to evaluate teaching and quality of curriculum.

4FF/14
Student perception of revision modalities in preparation for final Objective Structured Clinical Examinations (OSCE)

Alex Bonner (University of Manchester, Undergraduate Medicine, Central Manchester University Hospitals NHS Foundation Trust Education North (Academic Campus), Oxford Road, Manchester M13 9WL, United Kingdom)
Melanie Dowling (University of Manchester, Undergraduate Medicine, Manchester, United Kingdom)
Katy Hinchcliffe (University of Manchester, Undergraduate Medicine, Manchester, United Kingdom)
Nick Smith (University of Manchester, Undergraduate Medicine, Manchester, United Kingdom)

Background: Medical students preparing for final OSCE turn to a variety of sources to aid their revision.

Summary of work: We asked 128 students that had passed their final OSCE of the MBChB course to rate the perceived value of a variety of revision strategies in contributing to their success via electronic survey. 64 results were obtained.

Summary of results: Mock OSCE was the most highly rated modality; 64.3% of respondents rated it as "essential" and 83.9% as either "essential" or "important". Expert-led small group workshops (covering specialist subjects e.g. dermatology and ophthalmology) were rated as "essential" by 42.2% and as either "essential" or "important" by 71.1%. A revision weekend delivered by junior doctors (non-experts) was similarly highly rated (70.3% as either "essential" or "important"). However, non-exam orientated tutorials held throughout the 5th year, were rated by only 9.4% as "essential" and 46.9% as either "essential" or "important". 15.6% of respondents cited this modality as having either "no impact" or "little impact" on whether or not they passed their final OSCE.

Conclusions: The data suggests that mock examinations are highly rated by students preparing for OSCE examinations. Small group tutorials lead by both experts and non-experts were highly rated. Students in the run up to their examinations do not value un-focused tutorials.

Take-home messages: Non-expert revision sessions led by junior doctors may be valued as much as expert-led tutorials, and have the potential to benefit students and junior doctors. Mock examinations may be the most valuable revision tool and we propose further research to explore this.

4FF/15
Better Judgement: Improving assessors' management of factors affecting their judgement

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Lambert Schuwirth (Flinders University, Flinders Innovation in Clinical Education/HPE, Adelaide, Australia)

Background: It is increasingly clear that human judgement is indispensable in the assessment of students, especially in competency-based education. This requires a focus on assessor expertise, because assessing students requires similar expertise to clinical decision making. Managing judgement biases is important in developing such expertise, because such biases are incomplete (or incorrect) representations in the assessor's mind of what has occurred during the assessment. But, biases are very hard if not impossible to train away so a viable approach is to focus assessor training on developing biases into full-blown person and performance scripts, because possessing such scripts are associated with expertise.

Summary of work: We have developed an assessor-training package containing video presentations for the theoretical background, scripted video vignettes of assessment situations to practice recognition in well-defined situations, YouTube clips for ill-defined

situations, activities to apply all this to the participants' professional contexts and a compendium of practical strategies to prevent biases from unduly influencing the overall judgement.

Summary of results: The workshops demonstrated a need and demand in this area, led to an increased understanding of the issue, and produced a plethora of helpful strategies. We also gained a deeper understanding of how biases individually influence assessors' judgements and interact with each other, and how this can be counteracted

Conclusions: Assessors want and need training to manage judgement biases.

Take-home messages: Assessors need to understand, recognise and manage the impact judgement biases may have on them and there is training available for this.

4GG ePosters: Simulation

Location: North Hall, PCC

4GG/1

Evaluation of an innovative scenario based training concept in spine surgery

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Background: The study was integrated into an interdisciplinary research project to develop a new haptic high-fidelity simulation system for spine surgery. The substantial demands for a change in surgical training in Germany, and the high rating and support of the innovation idea by medical experts and trainees were the driving forces behind it. A central hypothesis was that surgical training can be improved by standardization of surgical action, and thus the creation of effective training modules.
Summary of work: A Cognitive Task Analysis (CTA) was conducted in a multicentre study by a team of social scientists. 36 observations in the OR as well as 17 partially standardized interviews were analyzed. Consultants and residents were asked to validate the observed surgical workflows and the first draft of a scenario based training. Based on these data the training concept was developed.
Summary of results: CTA showed that effective simulation training should not only place value on technical skills, but also on non-technical competences, e.g. understanding for the complex anatomy, diagnostic skills, perioperative decision-making and communication with the patient. Accompanying feedback techniques were seen as essential by all participants. In 2012 a pilot training with 4 consultants as trainees, 1 surgical expert as master presenter and 2 advanced consultants as trainers was conducted. All participating surgeons rated the training in all defined categories as very good.
Conclusions: An interdisciplinary research on surgical training is required to improve educational competence for surgical trainers.
Take-home messages: The combination of simulator trainings with a training concept is necessary.

4GG/2

Development and initial evaluation of a minimally invasive spine surgery simulator

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Deborah Rooney (University of Michigan, Medical Education, Ann Arbor, United States)
Thomas J Wilson (University of Michigan, Neurosurgery, Ann Arbor, United States)
Jorge Sanz-Guerrero Cosulich (University of Michigan, Ann Arbor, United States)
Bruce Tai (University of Michigan, Ann Arbor, United States)
Stephen E Sullivan (University of Michigan, Neurosurgery, Ann Arbor, United States)
(Presenter: Tony Tsai, University of Michigan, Ann Arbor, United States)

Background: We developed a high-fidelity lumbar spine simulator for teaching neurosurgical residents to perform minimally invasive microdiscectomies. Feedback from the first prototype guided refinements of the second prototype. We evaluated both prototypes for content validity.
Summary of work: Four neurosurgery residents and one attending neurosurgeon (n = 5) evaluated the first prototype. Eight residents and five attendings (n=13) evaluated the second prototype. Evaluators incised, dissected, placed tubular retractors, and reviewed fluoroscopic images of the model. Participants then completed a survey rated on a four-point rating scale, ranging from "Not at all realistic" [1] to "Highly realistic" [4], in several domains including: physical attributes (PA), realism of experience (RE) and ability to perform tasks (A). Participants rated the simulator's value (V) and relevance (R) on a five-point scale.
Summary of results: The observed averages for the first and second prototypes, respectively, were 3.2 and 3.4 (PA), 3.1 and 3.6 (RE), 3.1 and 3.8 (A), 4.6 and 4.9 (V) and 4.8 and 4.7 (R). Significant rating differences were identified for realism (p = 0.047) and value (p = 0.005). The final global rating 3.2 indicated that the simulator "can be used as is for training, but could be improved slightly". Final inter-rater reliability was high, ICC(2,13) = 0.81, 95% CI [0.61, 0.93], suggesting high participant rating agreement.
Conclusions: There was measureable improvement in the simulator between the first and second prototypes. Faculty and resident evaluations of the simulator indicate that it is a valuable training device, with minor improvements.
Take-home messages: High-fidelity simulators can be valuable training tools in neurosurgical education.

4GG/3

Human Patient Simulation Training in End of Life Care

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Lorna Lees (Lancashire Teaching Hospitals NHS Trust, Lancashire Simulation Centre, Preston, United Kingdom)
Jackie Hanson (Lancashire Teaching Hospitals NHS Trust, Lancashire Simulation Centre, Preston, United Kingdom)

Background: All health professionals are involved in the care of dying patients at some stage in their careers. The delivery of end of life care is challenging due to the interplay of emotional, ethical and clinical considerations. Despite this, most staff do not receive formal training in this field (Sullivan 2003). The use of human patient simulation (HPS) for palliative care training is a new concept (Pease 2007). By using clinical scenarios, reproduced safely and run in real time, we aim to show the effectiveness of HPS in addressing this educational challenge.

Summary of work: Mannequins and simulated patients were used in 'end of life' scenarios, for health professionals in palliative care and elderly medicine. Scenarios: Opioid toxicity in palliative care; Time pressured decisions at end of life; Family communication regarding the care of dying pathway; Artificial nutrition for patient with dementia. All participants completed post course reflective statements and feedback, assessed by thematic analysis.

Summary of results: Key benefits of HPS training: Advanced feedback on performance; Improved understanding and awareness of facilitative aids / barriers to communication; Highlighted the impact of a stressful working environment on clinical encounters; Allowed colleagues to learn from each other's experience.

Conclusions: The use of HPS for palliative care training received strongly positive feedback, developing skills transferable to clinical practice. In view of the current public interest (Dept Health UK Jan 2013), such training is justified to ensure professional competency and optimise patient care.

Take-home messages: HPS is an effective educational tool for palliative care training.

4GG/4
Measuring Cognitive Load in Hybrid Simulations of Venous Catheter Insertion

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Luke Devine (University of Toronto, Department of Medicine, Toronto, Canada)
Christie Lee (University of Toronto, Department of Medicine, Toronto, Canada)
Lynfa Stroud (University of Toronto, Department of Medicine, Toronto, Canada)

Background: Learning can be enhanced by manipulating cognitive load. Hybrid simulation (HS) is useful in training for complex procedural skills, however data is lacking on how to asses cognitive load in hybrid simulation.

Summary of work: Ten senior residents in General Internal Medicine participated in two HS scenarios in ultrasound-guided central venous catheter (CVC) insertion. Simulations required insertion of a CVC into a rubber part task trainer affixed to a standardized patient (SP), while interacting with the SP and a standardized nurse, and monitoring the patient's clinical status and ECG. Two scenarios with increasing complexity were designed. Scenario 1 included a minor arrhythmia during CVC insertion. Scenario 2 required addressing severe hypotension and an arrhythmia. Workload was measured with the NASA-TLX tool, and clinical performance was graded using validated checklists.

Summary of results: NASA-TLX workload results ranged from 27-87 (max 120), increasing on average 16 points (range 5-35) between scenarios 1 and 2. Differences were similar regardless of scenario sequence. Major sources of CL were mental demand, temporal demand, effort and frustration. As in prior studies, NASA-TLX workload and procedural performance did not correlate (r=-0.03).

Conclusions: Retrospective analysis of workload using NASA-TLX correlates with scenario complexity in this hybrid simulation exercise. Sources of workload were similar to previous clinical studies using NASA-TLX.

Take-home messages: Measuring CL can help tailor simulation exercises, by adjusting scenario difficulty to individual trainees' proficiency. NASA-TLX appears to capture workload appropriately in HS.

4GG/5
The Tools, the process and the training - a three pronged approach to improving the management of the difficult airway

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A Shonfeld (St George's Hospital, Anaesthetics, London, United Kingdom)
L Boss (Northwick Park Hospital, Anaesthetics, London, United Kingdom)
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T Tatla (Northwick Park Hospital, ENT, London, United Kingdom)
H Morris (Northwick Park hospital, Anaesthetics, London, United Kingdom)

Background: Over two years we have developed a unique multidisciplinary training day in difficult airway management. A workshop is followed by in-situ high-fidelity simulation involving theatre staff and anaesthetic and surgical trainees. We are conscious of Martin Bromiley's words asking for tools, process AND training 'so we can make quantum leaps in safe practice'.

Summary of work: The morning consisted of skills stations: the tools recommended by the Difficult Airway Society (DAS) for management of the difficult airway, with discussion of DAS guidelines, i.e. the process. An afternoon of multi-disciplinary workplace-based simulation with ENT surgeons, theatre staff and anaesthetists followed. The simulation covered 3-4 difficult airway simulations requiring all members of the team to become involved as the scenario progressed. In-depth structured de-brief followed each scenario. Candidates completed a questionnaire rating confidence with a full range of airway equipment before and after

the workshop and post simulation questionnaire evaluating the simulation, using a Likert scale (1-6).

Summary of results: All 78 candidates felt that the simulation replicated the stress of "live" situations (Mean =4.8), addressed training needs (mean=5.5), improved clinical knowledge, teamwork, leadership and non technical skills (mean =5.6). There was an increase in confidence with all airway equipment.

Conclusions: Simulation is an effective tool for teaching difficult airway management. A single workshop followed by in-situ simulation improves staff confidence with the tools and process necessary to improve outcome. We recommend a combined approach to teaching with an emphasis on multi-disciplinary participation.

Take-home messages: This course demonstrates success with multi-disciplinary training using in-situ high fidelity simulation and workshop-based teaching.

4GG/6
Sequential Simulation: An innovative approach to exploring the patient journey

Polly Hirons (Imperial College London, Department of Surgery and Cancer, London, United Kingdom)
Dilip Bassi (Imperial College London, Department of Surgery and Cancer, London, United Kingdom)
Elisabeth Paice (Elisabeth Paice Ltd, North West London Integrated Care Pilot, London, United Kingdom)
Sara Hamilton (Imperial College Healthcare NHS Trust, Paediatrics, London, United Kingdom)
Roger Kneebone (Imperial College London, Department of Surgery and Cancer, London, United Kingdom)
Fernando Bello (Imperial College London, Department of Surgery and Cancer, London, United Kingdom)

Background: With a call for better Integrated Care within medicine, Sequential Simulation (SqS) recognises the importance of a temporal context, where a sequence of clinical events unfolds during each patient's journey. Recreating such events through simulation complements the training needs of medical staff, allowing participants and audience members to visualise the journey of a patient through the healthcare system. This process highlights key 'crunch points' in the journey – most commonly hand-over or transition points where communication between teams is paramount.

Summary of work: Following Stroke and Myocardial Infarction projects, our current work focuses on paediatric asthma and elderly diabetic patients. We use a range of different simulated settings (for example A+E, GP surgery, hospital ward) to provide the physical context. Sequential Simulations have been run for both pathways, with the involvement of a multidisciplinary team, at a number of different public engagement and professionals' events.

Summary of results: SqS has received positive feedback from health professionals. They felt it was a valuable learning tool, which allowed them to think about patient journeys and their role in a more holistic way. It also stimulated much discussion amongst patient groups about how to improve their journey.

Conclusions: SqS is an innovative way of looking at the patient journey and learning about Integrated Care. It is highly versatile and is rated favourably by participants. Further work is needed to establish its feasibility and cost-effectiveness.

Take-home messages: At a time when Integrated Care is very much in the spotlight, SqS provides an exciting and innovative modality to educate trainees and help improve patient care.

4GG/7
Peer-assisted simulation teaching

Lydia Hanna (Maidstone and Tunbridge Wells, Surgery, Kent, United Kingdom)
Terry Collingwood (Maidstone and Tunbridge Wells, Anaesthetics, Kent, United Kingdom)
Emma Moran (Maidstone and Tunbridge Wells, Postgraduate Centre, Kent, United Kingdom)
Paul Moran (Maidstone and Tunbridge Wells, Anaesthetics, Kent, United Kingdom)
Simon Bailey (MTW, Surgery, Kent, United Kingdom)

Background: The EWTD and ever-changing shift patterns have meant that foundation doctors (FD) are increasingly spending less time in the hospital with reduced opportunity to safely learn key practical skills. The busy working environment presents a challenge to seniors in finding time for teaching and supervision in performing procedures. Core trainees (CT) and the use of simulation techniques may provide a solution to these issues.

Summary of work: A simulated practical skills weekend was set up to provide theoretical and hands-on teaching. It was delivered through simulation by appropriately trained surgical, anaesthetic and medical CTs. A total of 8 procedures were taught based on the Foundation Programme curriculum objectives and was centred around candidates being able to describe the indication for the procedure, relevant anatomy, complications during and after the procedure and post-procedure care. A pre and post-course questionnaire was distributed to assess learning.

Summary of results: Comparison of pre and post-course questionnaires demonstrated increased levels of confidence in performing all procedures with a reduction in the learners' perception of procedural complexity. Confidence in managing post-procedure complications was also improved.

Conclusions: Core trainees are well positioned within the training system to provide peer-assisted learning to Foundation trainees due to their accessibility and approachability. The use of simulation provides a safe environment to learn and become confident with procedural skills and their care without compromising patient safety.

Take-home messages: Simulation training delivered through peer-assisted learning by core trainees is valuable teaching modality for foundation doctors.

4GG/8

"Post factum"-What if you could change the terms? Initial experiences of U/S guided lines

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Ilene Harris (University of Illinois at Chicago, Department of Medical Education, Chicago, United States)

Background: Ultrasound (U/S) guided Central Venous Line (CVL) insertion is currently the standard of care. Randomized Controlled Trials show that simulation is superior to apprenticeship training.
Summary of work: We explored from the perspectives of participants in a U/S guided CVL simulation program the role of simulation training and other factors that impact real life performance. Purposeful sampling with 7 novice trainees and theoretical sampling with 6 faculty was used to investigate the experience of novice learners, after they had completed simulation training and then performed real life procedures. Semi structured interviews were used as the data source. In the constructivist grounded theory tradition, constant comparative analysis was conducted to identify emerging themes.
Summary of results: The novices had no prior knowledge or skills related to U/S guided CVL insertion. The transfer of skills from simulation to the actual bedside was not the only determinant of their performance. There were supportive factors (supervision, further real life experiences) and challenging factors (concern for patient welfare, complexity of the case, inability to troubleshoot) present at the bedside that further impacted the outcome. While some of those challenges could have been anticipated and taught using simulation, some could not. Novices also made suggestions for improving the simulation program (right refreshers, increasing the fidelity and complexity of scenarios with time).
Conclusions: Reflections of learners and faculty on real life experiences gave insight into utility and improvement of simulation training.
Take-home messages: As we strive to perfect our simulation training, we should also aim to perfect the clinical learning environment to appropriately support and challenge the learner.

4GG/9

Hybrid simulation: Bringing motivation to the art of teamwork training in the operation room

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C Escher (CLINTEC, Anesthesiology, Stockholm, Sweden)
L Felländer-Tsai (Clintec, Orthopedics, Stockholm, Sweden)

Background: Crew Resource Management (CRM) based operating room team training will be an evident part of future surgical training. Hybrid simulation in the operating room enables the opportunity for trainees to perform higher fidelity training of technical and non-technical skills in a realistic context.
Summary of work: Intact and authentic OR-teams consisting of residents in anesthesia (2), anesthesia nurses (3), residents in surgery (2) and scrub nurses (6). During a one-day course they were exposed to four different scenarios and their self-efficacy and motivation were measured at the start and end of the day. Training was performed in a mock up operating theater equipped with a hybrid patient simulator (SimMan 3G Laerdal and a laparoscopic simulator, Simbionix LapMentor Express). The functionality of the systematic hybrid procedure simulation scenario was also analyzed in an exit questionnaire and the overall evaluation (1-5, disagree entirely- agree completely).
Summary of results: Exit questionnaire showed very good result with a median grading of 5. Self efficacy (graded from 1-7) among the team-members improved significantly from 4 to 6 (median).
Conclusions: We conclude that hybrid-simulation is feasible and has the possibility to train an authentic operating team in order to improve individual confidence (self-efficacy and motivation).
Take-home messages: Hybrid simulation is a method to bring motivation to the art of teamwork training in the operation room.

4GG/10

Advanced emergency skills training for first-year medical students using manifold simulation-based approaches

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A Schmidt (Medical University of Graz, Department of Internal Medicine, Graz, Austria)
HP Dimai (Medical University of Graz, Vice-Rectorate for Teaching and Studies, Graz, Austria)

Background: Basic and advanced life support (ALS) are extensively taught during the clinical period of medical study. Yet, the practical ALS competence of graduating students is still insufficient. A possible solution may be to implement advanced emergency skills training in the pre-clinical period of study.
Summary of work: A two-hour course teaching cardiopulmonary resuscitation, airway management procedures (e.g. oropharyngeal suctioning, use of supraglottic airway devices) and structured emergency assessment was implemented. Central components are thorough theoretical pre-course preparation, peer-teaching, small teaching groups, and a hands-on concept. Simulation technology is used throughout the entire course: part-task trainers and static manikins for procedural training, a simulation software for the practice of patient assessment, and high-fidelity patient simulators for emergency simulations.

Summary of results: Between November 2011 and February 2013, 398 students have successfully completed the course. Initial student satisfaction is very high: 51 students have participated in a voluntary online-evaluation, with 45 students (88.2%) strongly agreeing/agreeing that they were satisfied with the course (mean grade of 1.4±1.0 on a six-point Likert scale).

Conclusions: Despite high student satisfaction, students' post-course competence and the long-term impact of this single training have to be assessed objectively. By using an innovative simulation-based course design, advanced practical aspects of emergency medicine can be implemented successfully in pre-clinical student education.

Take-home messages: Pre-clinical students are highly satisfied with advanced emergency skills training. Manifold simulation-based approaches are valuable in teaching first-year students emergency skills.

4GG/11
Does the Nasopharyngeal Box Model Help Medical Students Improve Mirror Examination Skill?

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Background: Medical students are unfamiliar with nasopharyngeal mirror examination. The anatomy of nasopharynx from mirror is different from the textbooks. The nasopharyngeal box model may help them illustrate anatomy before examining the patient.

Summary of work: Nasopharyngeal box, size 3.5x 4x 1.2 cms., made of printed paper, was used as teaching and learning model. The 27 fifth- year medical students in academic year 2012 were divided into two groups. The first group, 13 students, used this model for practising nasopharyngeal examination. The teacher clearly identified 4 structures including: posterior nares, eustachian tubes opening, nasopharynx and posterior pharyngeal wall. The second group, 14 students, learned nasopharyngeal anatomy from textbooks. Both groups were assessed by describing pathological findings from the other model. Then the scores of both groups were compared.

Summary of results: The mean score of nasopharyngeal box model group (11.77±3.22) was significantly higher than the other group (9.07±1.64,p<.05).

Conclusions: Nasopharyngeal box models help the students to be familiar with nasopharyngeal anatomy and enhance students' skill in nasopharyngeal mirror examination.

Take-home messages: Nasopharyngeal box model is cheap, simple and practical for practising nasopharyngeal mirror.

4GG/12
Comparing laparoscopic skill acquisition between at-home and in-Lab training, a randomised controlled trial

Ali N Bahsoun (King's College London, Urology, London, United Kingdom)
Michael Michael (King's College London, Surgery, London, United Kingdom)
Saied Froghi (Guy's Hospital, Urology, London, United Kingdom)
Kamran Ahmed (Guy's Hospital, Urology, London, United Kingdom)
Prokar Dasgupta (Guy's Hospital, Urology, London, United Kingdom)

Background: Opportunities to acquire laparoscopic skills can be difficult to access and costly. At home, training may prove to be an innovative solution.

Summary of work: Our aim was to directly compare the skill acquisition between an 'At-Home' training device, an iPad tablet trainer (TT), and an 'In-Lab' laparoscopic box trainer (BT).

Summary of results: Over the repetitions of each task the OSATS improved significantly for Group A (p<0.05). Similarly, over the repetitions of each task the OSATS improved significantly for Group B (p<0.05) except in task 2 (p=0.322). For task 1, both groups demonstrated a Significant improvement in time taken (p<0.002), but in task 2 (p=0.096) and task 3 (p=0.47) there was no significant improvement in both groups.

Conclusions: Both simulators proved useful at teaching basic laparoscopic skills to novices. Additionally, the TT has similar acquisition of basic laparoscopic skills to the BT. This is important as the TT is more portable and cost effective than the BT. Therefore, 'shifting' laparoscopic training from 'In-Lab' to 'At-Home' is a convenient way of training.

Take-home message: 'At-Home' laparoscopic training with its added benefits of convenience for both the trainees and the trainers is ideal for learning accessible tasks due to it being equally as useful as 'in-Lab' training. With the adoption of home training lab, time can become more focused on assessment and procedural skills making lab simulation time more productive for both trainees and trainers. The next few steps will be to design a home curriculum and build a library of tools and tasks.

SESSION 5: Simultaneous Sessions
Monday 26 August: 1600-1730

5A Symposium: Dialogue in medical education: Clinical education transformation as a means to social repair
Location: Congress Hall, PCC

David Hirsh (Harvard Medical School, USA)
Paul Worley (Flinders University School of Medicine, Australia)
Brian Hodges (The Wilson Centre, University of Toronto, Canada) (Moderator)

David Hirsh and Paul Worley will present their deliberations on the topic of clinical education transformation and its capacity to foster individual benefits (to learners and patients) and societal benefits (to institutions and communities). They will explore the learning sciences and the case for change that drives clinical educational reform. Further, they will consider the degree to which health professional education can advance community engagement, social justice, and humanism. Both have been engaged in the development and scholarly exploration of Longitudinal Integrated Clerkships and will use that as one platform from which to discuss their current thinking about advancing clinical learning, health systems change, justice, and social capital.
Note: In the Dialogue series, published in Medical Education[1], pairs of scholars who do not ordinarily work with one another, but share a common interest in a current issue, are asked to correspond over the course of two months about the thoughts and challenges with which they are currently grappling. The goal is explicitly not to force sides in a debate, but rather to work through divergent perspectives to determine what new ideas might emerge.
[1]Eva KW. Dialogue in Medical Education: Enabling the academic voyeur that lurks inside us all. Med Educ 2012;46:826-7.

5B Symposium: Integrated Cases: Promises, pitfalls, and progress in the development of a "new" simulation format to assess hard-to-measure competencies
Location: Meeting Hall I, PCC

David B Swanson (National Board of Medical Examiners, USA)
Kathleen Z Holtzman (National Board of Medical Examiners, USA)
Michael Wilkes (University of California at Davis, USA)

Integrated Cases (ICs) are designed to assess aspects of professionalism and communication, in addition to patient care skills. As ICs unfold, examinees face challenges embedded in real-world clinical tasks in which they naturally arise, with video used to portray clinical context and patient findings more authentically. Dave Swanson begins with a brief history of the IC approach in relation to research on patient management problems and key features work. Kathy Holtzman demonstrates ICs and associated stimulus/response formats. Michael Wilkes illustrates how video is used to broaden the competencies assessed. Last, Dave Swanson reviews results of two pilots of IC formats.

5C BEME Think Tank: The BEME Collaboration: Moving from recent challenges to opportunities for greater impact on educational practice
Location: Panorama, PCC

Dale Dauphinée (McGill University, Canada) (Chair)
John Norcini (USA)
Geoffrey Norman (Canada)
Liz Anderson (UK)
Marilyn Hammick (UK)

BEME has entered its second decade of existence and BEME reviews are increasing in number. In Vienna in 2011, the nature and impact of evidence in health sciences education was reviewed and discussed and it was concluded that evidence has many meanings depending on its use and the social and educational contexts. At the initial BEME Congress in Lyon in 2012, it was noted that specific lessons from the first decade of BEME were becoming evident. Furthermore, a consensus was reached that while both better technical and methodological improvements were needed, a careful relook at BEME's vision and mission would be in BEME's strategic interests. An international panel, representing BEME users, editors, researchers and policy makers, was appointed to report back at the 2013 BEME Congress. This session will highlight issues for discussion emphasizing the next continuous quality improvement steps for the collaboration and proposing new strategic activities for BEME.

5D AMEE Fringe 1

Location: Meeting Hall IV, PCC

5D/1
How not to 'flop' a 'flipped classroom'

Anne Minenko (University of Minnesota, Medicine, MMC 108 (A 652 Mayo Building), 420 Delaware Street SE, Minneapolis 55455, United States)

Me: US medical schools are both inspired and challenged by accreditation requirements of integration, active learning, independent study, and clinical reasoning development.
You (exasperated): Don't remind me.
Me: 'Classroom Flipping' is a clever way of meeting all these requirements.
You: Look, I'm already turned upside down!
Me: …and to keep you upright, this session will show you how the 'Flipped Classroom' approach is as simple as the idea and as amusing as the name.
You: (sarcastically) Simple you say? Now that's funny!
Me: For instance, independent study of video-captured lectures frees up class space.
You: How is teaching to an empty class clever?!! Where's the higher order learning?!!
Me: It's designed into the paired pre-class online activity / large-class interactivity. Frameworks (e.g. Perry's Scheme, Bloom's Taxonomy, Motivational Theory, etc.) can guide the design of a 'Flipped Classroom' to promote student engagement and critical thinking.
You: I get it! AND I'll stop bothering staff to find non-existent seminar rooms.
Me: Right! And we'll keep patients happy, by not having to recruit physician-instructors away from clinics to facilitate small group seminars.
You: Speaking of practicing physicians, I'm no framework aficionado.
Me: The session will be empowering, enabling, memorable and fun. You'll learn 7 words that rhyme with 'flip' and 7 that rhyme with 'flop', to help you remember key framework elements and avoid pitfalls.
You: 7 + 7 words, from Cognitive Load Theory, to help do a 'Classroom Flip' and avoid a 'Classroom Flop'!

Me: …without the gym attire :).

5D/2
Naked before the class: exposing the essential anatomy of directors of brand new medical school courses

Kenneth Locke (University of Toronto, Undergraduate Medical Education and Medicine, 457-600 University Avenue, Toronto, ON M5G1X5, Canada)

Creating a new paradigm of learning in an established medical school curriculum is a challenging endeavour. While instructional design, curriculum mapping and needs assessment have been well described in the education literature, very little attention has been focused on the personal experiences of the people leading the development and implementation of new courses, particularly when those courses look and feel different to students. Yet anyone introducing a fledgling course to skeptical students realizes that their own personal qualities are soon tested. The experience of putting one's face and name to something new, and surviving the ups and downs of the first course cycle, can leave faculty members exposed and vulnerable. This presentation is based upon the experiences of the author and colleagues, working in a traditional curriculum, in developing courses based on new learning paradigms. Students at this institution were introduced to teamwork and management theory, simulated resource allocation, reflection on personal experiences, and an expanded emphasis on the determinants of health, alongside the standard biomedical curriculum. The course directors involved in the initial cycles found themselves "sticking their necks out" to make the new courses work. Further investigation has found many other anatomical correlations, all essential to undertaking this task.
This presentation uses a multimedia format to expose the anatomy of a director of a new medical school course. The audience will be led through this anatomy lesson, and encouraged to examine themselves for the same qualities (but later, in private, with the blinds drawn). Safe for family viewing.

5D/3
Medical Careers - a game for everyone

David Topps (University of Calgary, Family Medicine, 2808 11 Ave NW, Calgary T2N 1H9, Canada)
Maureen Topps (University of Calgary, Family Medicine, Calgary, Canada)

Medical Professionals face an abnormal number of stressors in their careers. Medical students occasionally hear some of the effects of these stressors but receive little guidance on career choices and how to handle these stressors. Physicians have a higher than usual prevalence of process addictions and substance addictions - we self-drive to be high achievers and workaholics, thereby producing a number of unhealthy by-practices.
Based on some work with the Norlien Foundation on Early Brain & Biological Development in Addictions, we created a version of the classic board game, Careers, using the OpenLabyrinth virtual patient platform. This game, Medical Careers, can be played online using any web browser and is open for public use.
For this Fringe presentation, we will adapt the game for a highly interactive, rapid-fire team-based competition, featuring live role-play action. This will highlight some of the features of the online version, showing teachers how they might incorporate the game into their own teaching settings. The live action will demonstrate in a fun and entertaining manner some of the faults and misbehaviours that physicians get up to.

5D/4
A Crossword About Curricular Crossroads

Cristian Stefan (Georgia Regents University, Medical College of Georgia, 1120 15th Street, CB-1101, Augusta 30912, United States)
Robert Hage (St. George's University, School of Medicine, Grenada)

The proposed horizontal and vertical integration has been an important goal in curricular planning and an intended engine to support educational change and transformation. Let's pause for a second. Are we truly doing this personally or just because the curriculum is mandating it? Are the delivery of and testing on factual information appropriately balanced by the application of knowledge to various situations and emphasis on critical thinking? Do we encourage communication with others, real partnership and open exchange of ideas in the process or do we tend to protect our own field of interest while agreeing to change everything else? And how much remains to be changed in this case? This session is interactive. It's challenging. It's realistic. And it's fun. Why? Because it is about distilling the root cause analysis of the difference between talking the talk and walking the walk into reflection and teaching moments. And the audience is part of it. Let's talk and walk together (horizontally and vertically) through a crossword in which the words integration, collaboration, efficient and effective may… or may not look in reality what they mean on paper. We will explore together new ways to define their significance, how to face barriers, and, most of all, how to ignite, maintain or reignite the inner quest to embrace and promote a meaningful educational transformation.

5D/5
The case of Dr. Alecto: clinical educator, misogynist

Hudson Birden (University Centre for Rural Health, North Coast, Medical Education, PO Box 3074, Lismore, NSW 2480, Australia)

Presenting for the enlightenment and infuriation of the audience the case of Dr. Alecto, an experienced clinical educator, in which the doctor's views will be aired, the appropriate response discussed, and the proper place of Strontium established.
"I think [professionalism] …has not only displaced important subjects from the curriculum, but is actually doing harm. ...I think it is just worthy of nothing other than contempt. It's part of a bigger picture, I think, that has eroded medical education, and that is that basic sciences are being sacrificed to make room for this rubbish. … How do you create a framework, a lattice, of knowledge and understanding of a huge area by just taking a chunk here, a chunk there, and the kids have got no idea of what the structure is in between these chunks."
"The whole business of problem-based learning and the emphasis on the touchy-feely crap, I no longer can separate them because I think [what] they have buried within them…is that the feminisation of medical education is anti-scientific."
"Boys are going to be interested in the sciences and the maths and the girls are not. ...having shifted the whole axis of medical education along feminised lines, the bit that suffers is the scientific element of it… the fact is that there are going to be graduating huge numbers of female graduates who will just play Mickey Mouse with the profession throughout their lives, and never really achieve anything and never really put any hard yards in."

5E Research Papers: General Practice/Family Medicine and Faculty Development
Location: Meeting Hall V, PCC

5E/1
The Influence of Academic Discourses on Medical Students' Interest in Family Medicine as a Career Choice: An International Comparative Case Study

Charo Rodriguez (McGill University, Family Medicine, Montreal, Canada)
(Presenter: Teresa Pawlikowska, Warwick Medical School, The University of Warwick, Coventry CV4 7AL, United Kingdom)

Introduction: Despite important differences in terms of medical curricula, health care delivery systems, and sociocultural features, current evidence highlights a widespread trend towards medical specialization in developed countries (1). Scholars have explored different factors to explain medical students' declining interest in family medicine (or general practice) as a career choice, such as a significant gap between specialty and family medicine incomes. However, the influence of institutional discourses on the construction of the professional identity of family physicians in academic centers during undergraduate medical training had not been investigated so far. The questions that guided the present investigation were thus the following: 1. what do medical students and their educators think about the discipline of family medicine? 2. In what ways do these academic discourses influence medical students' career choice?
Methods: An interpretive case study research design was adopted (2), and four cases (i.e. medical schools) were involved in the study. They were located in four different countries, i.e. Canada, France, Spain, and the United Kingdom, as we decided to compare the results from different countries to further our understanding of emergent issues. Data sources included 18 focus groups with medical students, 67 individual semi-structured interviews with Faculty educators, and supporting documents. Thematic analysis was applied to interviews transcripts. Within- and cross-case analyses were performed.
Results: The most striking finding was the clear polarization existing between the medical school where family medicine was a fully-recognized academic discipline to which students were exposed from the very beginning of their studies, and the other medical schools where students had little or no exposure to this practice, and where family medicine was disregarded as a valid career option. In the former, the prestige of the profession was relatively high, and the features of this professional practice as well as the knowledge and skills necessary to perform as a general practitioner, although contentious in hospital settings, appear to be held in high esteem by both students and Faculty educators. It was the opposite in the other three medical schools, where family medicine was devalued, either overtly or

through a double academic discourse that stressed the importance of the practice for the health care system while demeaning family medicine because of its lack of a hard technical medical skill set.
Discussion and Conclusion: From our comparative case study analysis follows that where (a) medical students are exposed early and intensively to the practice of family medicine and to family physicians who are good role models, (b) family medicine is a fully recognized medical academic discipline, and (c) graduates practice in a health care system supportive of the discipline (e.g. good remuneration, easier professional/personal life balance), family medicine exhibits a better reputation. Students can therefore more easily identify with this professional practice during their medical training, which increases the proportion of students that choose general practice as a career pathway. Our work emphasizes the critical influence that academic discourse has on facilitating or preventing medical students' identification with family medicine practice. Explicit consideration of professional identity formation in medical students' training appears an imperative.
References: 1. Organization for Economic Co-operation and Development. Health at a Glance 2009 – OECD Indicators.
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5E/2
Applying the Trigger Review Method after a brief educational intervention: Potential for teaching and improving safety in GP specialty training?

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Carl de Wet (NHS Education for Scotland, General Practice, 89 Hydepark Street, Glasgow G3 8BW, United Kingdom)
Moya Kelly (NES, General Practice, Glasgow, United Kingdom)
Paul Bowie (NES, General Practice, Glasgow, United Kingdom)

Introduction: The Trigger Review Method (TRM) is a structured approach to screening clinical records for undetected patient safety incidents (PSIs) and identifying learning and improvement opportunities. In Scotland, TRM participation can inform GP appraisal and is financially incentivized by some health authorities. TRM will be part of a forthcoming national primary care patient safety programme but the clinical workforce needs up-skilled. Additionally, the potential of TRM in GP training has yet to be tested. Current TRM training utilizes a workplace face-to-face session by a GP expert, which is not feasible. A less costly, more sustainable educational intervention is necessary to build capability at scale. We aimed to determine the feasibility and impact of TRM and a related training intervention in GP training.

Methods: We recruited 25 west of Scotland GP trainees to attend a 2-hour TRM workshop. Trainees then applied TRM to 25 clinical records and returned findings within 4-weeks. A follow-up feedback workshop was held.

Results: 21/25 trainees (84%) completed the task. 520 records yielded 80 undetected PSIs (15.4%). 36/80 were judged potentially preventable (45%) with 35/80 classified as causing moderate to severe harm (44%). Trainees described a range of potential learning and improvement plans. Training was positively received and appeared to be successful given these findings. TRM was valued as a safety improvement tool by most participants.

Discussion and Conclusion: This small study provides further evidence of TRM utility and how to teach it pragmatically. TRM is of potential value in GP patient safety curriculum delivery and preparing trainees for future safety improvement expectations.

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5E/3

The Caring Doctor in Canadian Postgraduate Family Medicine: A Critical Discourse Analysis

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Ayelet Kuper (University of Toronto, Medicine, Toronto, Canada)
Batya Grundland (University of Toronto Faculty of Medicine, Family and Community Medicine, Toronto, Canada)
Risa Freeman (University of Toronto Faculty of Medicine, Family and Community Medicine, Toronto, Canada)

Introduction: It is a widely held understanding that optimal healthcare involves compassionate care as well as biomedical knowledge and technical skills. However, the provision of compassionate care requires more than innate good nature or good intentions. A medical curriculum crammed with biomedical content does not prepare learners to bring generosity of spirit into complex practice settings (Witz 1990). Professional power relations play out within rigid hospital structures limiting the flexibility needed for creative, person-focused care. Simply being kind-hearted will not surmount the educational and institutional factors that comprise the hidden curriculum (Hafferty 1998). To improve educational programs and inculcate values and practices of caring we must understand the discourses of the caring doctor in the documents and standards that frame our teaching programs. Canadian family medicine has recently adopted CanMEDS as its competency framework and revised its accreditation standards to reflect this change. Analysis of Canadian family medicine therefore has relevance for other countries and curricula. Our research question was: what are the discourses of the caring doctor in family medicine residency training in Canada?

Methods: Using Foucauldian methodology, we conducted a critical discourse analysis (Foucault 1999) of the caring doctor in postgraduate family medicine training in Canada. Our primary textual archive included current College of Family Physicians of Canada accreditation standards and curricular documents, Association of Faculties of Medicine reports and documents, and key international medical education reports. Secondary texts included relevant documents from a literature search of compassionate care in medical education texts in the past 10 years. Documents were analysed to identify statements and metaphors that form current discourses of the caring doctor and to describe their discursive effects on specific practices, power relations and institutions.

Results: Discourses of the caring doctor were not prominent in the formal documents and reports that frame Canadian postgraduate family medicine training. They were also limited in the education literature. Role modelling was identified as a one of the best ways to teach and inculcate values of caring, however literature to support this assertion was surprisingly sparse. Aspects of compassionate care were embedded in statements about professionalism, patient-centred care, and the doctor-patient relationship, however discursive framing of these focused more on clinical efficacy and maintaining boundaries than compassion.

Discussion and Conclusion: Absence of phenomena can provide important insights. We realized as we engaged in our data analysis that we had to probe more deeply into proxies for compassionate care than we had initially anticipated. If we consider the practice of compassionate care to be important, we need to pay attention to the formal descriptions of our training programs and accreditation standards. Medical educators must consider whether the language we use reflects the educational values we wish to promote.

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5E/4

From feedback to action: explaining how faculty act upon residents' feedback to improve their teaching performance

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Kiki Lombarts (AMC Amsterdam, Professional Performance Research group, Center for Evidence-Based Education, Amsterdam, Netherlands)

Introduction: The goal of residency training is to provide training while ensuring patient safety. This requires excellent performance from teaching faculty. Multiple feedback systems are being used to support faculty to remain or become high-quality teachers. However, there is a lack of knowledge on how faculty react to and act upon feedback received from residents. This multi-specialty, multi-institutional interview study was conducted to (i) gain insight into how teaching faculty proceed after they have received residents' feedback on their teaching performance and (ii) what influences their progression.

Methods: Between August 2011 and December 2011 twenty-four faculty who had received formative feedback on their teaching performance through a valid and reliable evaluation system (SETQ system [1-4]) participated in this study. They reflected upon their (re)action(s) during individual semi-structured interviews. The interview protocol and analysis were guided by Prochaska's comprehensive trans-theoretical framework describing and explaining stages and processes of behavioural change [5].

Results: Faculty involved in residency training used residents' feedback to different extents to adapt or improve their teaching performance. Important tipping points in the processes of change for faculty to put feedback into practice were: experiencing negative emotions for themselves or residents from not acting upon the feedback, realising that something should be done with or without support from others, and making a strong commitment to change. In addition, self-confidence to act upon feedback and recognizing benefits of change were found to stimulate faculty to change their teaching behaviour.

Discussion and Conclusion: New knowledge is now available on the various ways faculty continue after they receive residents' feedback. This study provides insight in the stages and processes of change faculty proceed through. Since faculty use feedback to improve their teaching performance, organising residents' feedback for faculty in a systematic way is strongly recommended for continuous improvement of teaching performance, and consequently the quality of residency training.

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5F Symposium: MEDINE2: Implementation of the Ten Dimensions of the Bologna Process in Undergraduate Medical Education
Location: Chamber Hall, PCC

Madalena Patricio (University of Lisbon, Portugal, and AMEE) and representatives of the different stakeholders including teachers, students and deans

5G Short Communications: Assessment: Progress Test
Location: Conference Hall, PCC

5G/1
VGTogether – collaborating in progress testing

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Annemarie Camp (Maastricht University, Educational Development and Research, FHML, Maastricht, Netherlands)
Frank van de Kamp (Maastricht University, Educational Development and Research, FHML, Maastricht, Netherlands)

Background: The interuniversity Progress Test in Medicine (iPTM) is jointly produced and simultaneously administered by five medical faculties in the Netherlands. Such a collaborative effort requires an organizational and ICT infrastructure that supports the tasks and logistic processes that are needed in running the progress test four times a year. Some essential processes were not yet supported by ICT at a desired level of quality. The VGTogether project aimed at improving and extending the ICT infrastructure of the iPTM.
Summary of work: During the two-year project VGTogether, funded by SURF, we concentrated on four problems: the ICT infrastructure was not centralized enough, item writing was not supported by ICT, we needed a business model to valorize products developed within the iPTM, and we needed to support the exchange of knowledge about progress testing.
Summary of results: The project produced four results. First, we setup a centralized and generic technical infrastructure, hosted by an independent partner. Second, using an elaborate requirement assessment and selection process, we selected and piloted an online authoring and item banking system (IMS from Heidelberg University). Third, we developed a business model and finally, a website including web 2.0 functionality was set up (www.ivtg.nl).
Conclusions: The centralization of the ICT-infrastructure, a business model, and the website are successfully finalized. A pilot study of the IMS system was organized at Maastricht University and where needed adaptations in the system were made. The evaluation results of the pilot study are currently being analyzed and will be presented at the conference.
Take-home messages: Collaboration in (progress) testing between institutions requires a solid ICT-infrastructure.

5G/2
A Nationwide Progress Test (PT) for all Students in Midwifery Programs in the Netherlands

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Titia Eijndhoven (VAR, Higher Education Midwifery, Rotterdam, Netherlands)

Background: Each year there are 200 graduates who receive the title of Bachelor in Midwifery in the Netherlands. The programs are carried out by the AVM, VAR and AVAG. Although the learning objectives are by law largely the same for these three programs, curriculum structure and teaching models are different. In the development of the joint test and its systems and procedures we were supported by Maastricht University (UM) which is the coordinating University for a Dutch nationwide PT for medical students for fifteen years.
Summary of work: To measure and compare the outcomes of these three programs we worked together to develop one nationwide Progress Test (PT). All students will be subjected to this test four times per year in all phases of their four year program. Also information for comparing the performance of the three programs will be available and can be used. The principle is that all three programs can keep their own structure and teaching model if quality measures do not require changes in them.
Summary of results: The tests consist of 200 MPC items spread over the entire body of knowledge for the midwifery domain. To make each test comparable with the others a test blueprint is developed. The MPC items are written by teachers of all three programs and are gathered in one digital item bank, supported by one online test authoring and review system (IMS2).There is one joint quality procedure.
Conclusions: The first Nationwide Dutch PT for midwifery will be held in September 2013. AVM and VAR have their own (non joint) PT for several years. For AVAG this will be the first PT.
Take-home messages: The Dutch national PT for midwifery will be the first for midwifery students and one of the first for non-medical students.

5G/3
Report of The First Multi-institutional Progress Test in Saudi Arabia

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Abdulla AlGhasham (Qassim University - College of Medicine, Pharmacology, Melida)
Mohammed Saqr (Qassim University - College of Medicine, Medicine, Buraydah, Saudi Arabia)

Background: Progress test is a comprehensive assessment of undergraduate medical knowledge that samples all students of a medical school or a group of medical schools regardless of their level in the medical program or instructional methodology of the curriculum. In Saudi Arabia, Qassim College of Medicine (QCM), after two rounds of pilot progress test of its own students, has conducted the first multi-institutional progress test of 3830 students from twelve colleges in the Kingdom.

Summary of work: The test included 200 type-A MCQs covering all aspects of medical study for the graduate level. The exam blueprint was based on The Saudi Meds, with consideration of body systems, medical disciplines and different processes that graduates are expected to be involved in. Test items principally tackled areas of common clinical problems which graduate are expected to master, or high-risk situations where early intervention makes a difference. 35% of items covered basic biomedical sciences and 65% represented clinical science including behavioral and social sciences. 186 items were specially developed "de Novo" in (QCM), and the remaining items were provided by Maastricht University progress test bank. The test was paper based followed by a feedback survey.

Summary of results: Results were declared online to each student as percentage score in each of the processes, body systems and disciplines, as compared to same batch in own college and all over participants. Besides, anonymized results and analysis were sent to every college. The test reliability KR21 was 0.96 and students' feedback was generally encouraging.

Conclusions: Progress test provided valuable information to students and colleges.

Take-home messages: Progress test should be considered for students' assessment and benchmarking.

5G/4

Psychometric properties of progress testing: an international multicentric study

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Rosa Malena Delbone Faria (José do Rosário Vellano University and Federal University of Minas Gerais, Medical Education, Belo Horizonte, Brazil)
Arno Muijtjens (Maastricht University, Educational Development and Research, Maastricht, Netherlands)

Background: Benchmarking of medical schools has been a reality in regional progress test consortia worldwide. However, validity of comparisons between schools from different countries has unique challenges due to the impact of local differences, such as scoring, summative or formative usage and blueprinting. This study aimed to explore the relationship between some contextual factors and the psychometric properties of progress testing.

Summary of work: This retrospective, observational, cross-sectional, multicentric study analyzed data from progress tests of four different institutions. Variables regarding the samples included formative/summative usage, testing in native language, and "question mark/penalty for wrong answers" usage. Item response theory logistic models were applied. Item parameters and reliability coefficients were compared, as well as fit indices, local precision graphs and item-person maps. Differential item functioning was performed whenever applicable.

Summary of results: There were no important differences in reliability estimates across institutions. However, especially when the penalty was present, a negatively skewed distribution of b parameters could be observed. This right-sided peak was accompanied by a mismatch between item ("b") and person ("theta") curves. Increased mismatching was associated with poorer model fit, parameter invariance and unidimensionality.

Conclusions: Substantial evidence support usage "question mark/penalty for mistakes" in progress testing. Nevertheless, when applied in international consortia, it may hinder the appropriateness of benchmarking inferences. Apparently, language proficiency and risk-avoidance behavior act together as construct-irrelevant sources of score variance that could affect the validity of international performance comparisons.

Take-home messages: International progress testing consortia may need to sacrifice the educational utility of "question mark/penalty for mistakes" in favor of more accurate benchmarking.

5G/5

Blueprint Analysis and Feedback based on the Progress Test

L Coombes (Plymouth University, Peninsula School of Medicine and Dentistry, Drake Circus, Plymouth PL4 8AA, United Kingdom)
J Stratford (Plymouth University, Peninsula School of Medicine and Dentistry, Plymouth, United Kingdom)

Background: The Progress Test is used for testing applied medical knowledge and consists of 125 MCQ items taken four times a year by all students in the medical school. Each item is blueprinted against the curriculum to provide a detailed subject and domain that each item assesses.

Summary of work: By developing a simplified version of our curriculum blueprint we are able to provide detailed analysis of subjects and domains. Each student has access to their own scores compared to their cohort for an individual test, and for each academic year. It also allows us to examine whether all knowledge grows at the same rate or whether there are differences between some of the areas under examination.

Summary of results: This analysis has provided a method for feeding back PT performance information in a meaningful way to students, and helps monitor whether changes in the curriculum are mirrored in our knowledge assessments.

Examples will be presented from student feedback and its usage since introducing the feedback system, longitudinal gains in knowledge in different subject areas, and will examine whether there are differences in the rates of knowledge growth for different genders or ethnicities.

Conclusions: The analysis has proven popular and provides good feedback to students, as well as providing the school with information about the rate of knowledge growth across the curriculum.

Take-home messages: The Progress Test is particularly useful at examining longitudinal trends in data and the rates at which we can expect medical students to gain expertise in a number of areas.

5H Short Communications: Curriculum: Humanities

Location: Club H, PCC

5H/1
Teaching about Spirituality in New Zealand Medical Schools

Deborah Lambie (University of Otago, Department of Preventive and Social Medicine, Dunedin, New Zealand)
Richard Egan (University of Otago, Department of Preventive and Social Medicine, Dunedin, New Zealand)
Simon Walker (University of Otago, Bioethics Centre, Dunedin, New Zealand)
(Presenter: _Roderick MacLeod_, University of Sydney, Palliative and Supportive Care, Greenwich Hospital, 97-115 River Road, Greenwich, Sydney 2065, Australia)

Background: Addressing spirituality has been shown to positively impact a range of health outcomes and patients have been reported as wanting spirituality addressed in medical contexts. Currently more than 80% of medical schools in the US offer courses in spirituality. This study aims to investigate whether and how spirituality is taught in New Zealand medical schools.
Summary of work: This study employed mixed methods; qualitative conversations provide depth; quantitative surveys provide complementary breadth. Overall there were 14 interviews and 73 survey responses (rr 39%) from New Zealand medical schools.
Summary of results: Results indicate that spirituality is regarded as an important part of healthcare but there was little consensus as to what the topic was essentially about. However, the majority of respondents (58%) were unsure if spirituality was being taught and 18% said it was not being taught. 82% stated the lack of consensus regarding the nature of the topic as a potential obstacle to it being taught effectively.
Conclusions: Spirituality is regarded as an important aspect of medical education and yet is not being understood or taught uniformly. Several interviewees spoke of the potential dangers of exploring spirituality which in itself indicates a lack of understanding. Spirituality does not yet have a clearly defined place in medical education in New Zealand. Clarification is needed if progress is to be made in this area.
Take-home messages: Spirituality is an important aspect of medical education which is not yet clearly understood or taught in New Zealand medical schools.

5H/2
Balancing heart, humanity and science in medical education: competencies for Spirituality and Health

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(Presenter: _Christina Puchalski_, George Washington University, Medicine, Geriatrics and Palliative Care, 2150 Pennsylvania Avenue NW, Washington, DC 20037, United States)

Background: Early 20th century technological advances in diagnosis and treatment overshadowed the more human elements of medicine. In response, medical academics and practitioners launched Spirituality and Health as a field to reclaim medicine's spiritual roots, defining spirituality beyond religion and ethics, as each person's search for meaning and purpose in life. As the field continued to grow, the need emerged for a framework for communication, curriculum analysis, and scholarship to bring it cohesiveness.
Summary of work: To develop a framework, in 2011 a consensus conference of seven medical schools was organized.
Summary of results: Educators from the 7 schools created a framework around competencies: Knowledge, Patient Care, Professional and Personal Development, Communication, and Compassionate Presence. They populated each competency domain with measurable behavioral objectives that learners would be expected to demonstrate in performance assessments.
The competencies' first applications were curricular projects of the above seven medical schools as well as the GWish-Templeton Reflection Rounds initiative (G-TRR). Piloted in eight medical schools, G-TRR provided clerkship students with the opportunity through reflection on their patient encounters, to develop their own inner resources for addressing the suffering of others.
Conclusions: Seven US medical schools developed Spirituality and Health Care competencies to form a common framework for this field, which aspires to restore to medicine the balance between heart and humanity and science. Future directions for the Competencies include application across professions and vertical integration across the medical education continuum.
Take-home messages: The Competencies offer a framework that can be used globally within and across professions for curriculum development, analysis and scholarship.

5H/3
Medical educators rush in where biomedical teachers fear to tread - developing a medical humanities core curriculum

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Background: Medical humanities is increasingly being included as part of the medical curriculum with the aim of producing doctors who are not only biomedically qualifed but also humanistic and caring. Two key issues are how to make medical humanities pedagogically sound as well to ensure its sustainability given the competition for curriculum time and teaching workload of the faculty.

Summary of work: With 4 years of planning involving various stakeholders, visits to medical schools overseas where medical humanities are being taught, and advice from experts, we piloted several modules in medical humanities. Based on the success of these modules, a Medical Humanities Planning Group was formed to formally develop a medical humanities core curriculum which will extend throughout 6 years starting in September 2012 with a first year intake of 210 medical students.

Summary of results: The curriculum was planned using an outcome approach to student learning model with alignment of teaching and learning activities and assessment. In year 1, teaching and learning activities took the form of lectures, workshops, discussions and museum visit and exploring five themes - narrative medicine, culture, spirituality and healing, history of medicine, death, dying and bereavement, and humanitarism - and presented through reading and writing, performance, visual arts and film. Assessment was based on participation in workshops (spoken and written), online postings and creative output. We were very encouraged with the very positive response from students. An unique feature is the participation of teachers from diverse disciplines in the curriculum.

Conclusions: We have succeeded in delivering a medical humanities core curriculum for year 1 medical students with a positive response.

Take-home messages: A medical humanities curriculum has meaning if it is a core curriculum and is assessed, and can be sustainable with careful planning from various stakeholders, and with teaching support from the wider faculty community.

5H/4
Knowledge is not enough: the undergraduate humanist performance evaluation

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Carolina Guevara (UACH School of Medicine, Educational Research, Chihuahua, Mexico)

Background: The global health problems require competent doctors who promote health in a humanitarian way and with ethical commitment. We have implemented a quality management model (QMM) oriented to the integral formation of physician competencies. The aim is to show the implications of this model evaluated through the objective structured clinical evaluation (OSCE).

Summary of work: A descriptive-transverse correlational study with the application of OSCE to 46 undergraduate medical interns (UMI) to assess their competencies with standardized patients (SPs) through four levels of performance: receptive, resolving, autonomous and strategic (Tobon, 2010). A questionnaire was applied to measure the relationship between clinical mentoring and the clinical skills of UMI. The results were analyzed with a significance level of $p < 0.01$ and with a 1-10 scale in performance.

Summary of results: The UMI reached autonomous performance (8.5) in interpersonal communication with SPs, they showed values of respect, honesty and truthfulness when informing them about their health; in interpretation of physiopathology they reached a strategic level (10); however in the clinical evaluation they reached a resolving level (6.5), this showed that they require support from the clinical tutor for a complete and systematic patient examination. We found a significant correlation between tutor preparation and a friendly and respectful attitude towards patients ($r =0.28$).

Conclusions: The QMM favors the development of communication, socio-cultural and professional ethics competencies.

Take-home messages: The training of medical humanists with ethical commitment demands the implementation of a QMM centered on the training of competences with tutorial assistance.

5H/5
Teaching Medical humanity at Kerbala Medical College: Phenomenological perspective

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Background: Medicine is usually defined as an art and science. This is what I had been taught at my medical college when I was medical student. In reality they never discussed humanistic dimension of medical practice, the focus was on the biological aspect. Now as a medical teacher, I decided to give room to this important aspect of medicine of which we are in real need in every stage in our medical life.

Summary of work: I started teaching it to my first and sixth year medical students. I use interactive lectures plus relevant movies. I use the phenomenological method to explore the lived experience of being taught medical humanities and watching movie scenes like 'The doctor' and 'Patch Adams'.

Summary of results: Twenty students from both stages were interviewed about their lived experience of the lectures and movies. Three themes were revealed after using phenomenological analysis: first theme: what it is like to be a patient; second theme: is therapeutic power of words (comfort); the last theme: the difference between listening and hearing.

Conclusions: Our experience of teaching medical humanities to our student was a transformative experience which creates great interest in this new subject and opens the door to speak about professionalism and empathy. This encourages us to introduce humanities to all students of our college.

Take-home messages: "Humanities is not a stranger at the gate, but just a long-lost friend" (H. M. Evans) and "Cure sometimes, treat often, comfort always (Hippocrates).

5H/6

Integrated approach for teaching Humanities in undergraduate medical curriculum

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Background: The role of the Humanities in medical education is crucial as they assert humanistic values in medicine. The integrated approach to teach the Humanities may allow the development of appropriate ethical humanist skills, critical thinking and professionalism.
Summary of work: The attempts of integration of courses related to the Humanities (Medical English, Latin and Intercultural Communication in Medicine) were made in the Ural State Medical Academy. These subjects are traditionally taught during the first year of study. We rearranged the structure of courses to introduce and discuss the corresponding topics in a parallel way to enhance comprehension of the material. Fourteen first-year students were involved in the pilot study conducted during September-October 2012. Their participation was voluntary. We interviewed students to get their feedback on the integrated courses in the Humanities.
Summary of results: All students found the integration of courses helpful. The majority (n=12) of students noticed that it made them reflect on such issues as humanism, tolerance and empathy in medicine even outside the classroom. All students also enthusiastically accepted discussions as a form of controlling task, as it gave them an opportunity to "feel more involved" in the educational process compared to "the feeling of isolation" when passing examinations and getting credits in conventional way.
Conclusions: The integrated approach to teach the Humanities in medical schools may be effective in providing vast amounts of information in a comprehensive manner. Currently the need for integration is obvious both for students and lecturers.
Take-home messages: The integrated approach in medical education helps to avoid fragmented manner of teaching.

5I Short Communications: Clinical Skills
Location: Club A, PCC

5I/1
Introduction of Undergraduate Medical Student Clinical Skills Logbook

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Background: Medical students need to be aware of their responsibility to maintain clinical skills throughout their careers and collate evidence in portfolios. We recently introduced 'DOPS' assessment with positive student feedback. In this study, we aimed to evaluate the introduction of a compulsory logbook and 'real-patient' learning experiences.
Summary of work: 52 third-year students were provided with a logbook for documentation of supervised venepuncture and cannulation 'real–patient' procedures, performed or attempted during an 8-week clinical attachment. All students attended weekly clinical skills teaching sessions. Students completed post-attachment feedback questionnaires; responses were assessed using a 6-point Likert scale and are presented as [median, (IQR)].
Summary of results: All students agreed that they should be competent and confident to perform venepuncture and cannulation on patients by the end of year 3 [6, (5, 6)]. Most students found skills-lab sessions useful prior to performing procedures on live patients [4, (2, 5)]. Students performed approximately 30% more procedures following logbook introduction and most agreed that the procedural logbook should be introduced into their curriculum [4, (2, 5)].
Conclusions: Students are keen to embrace concepts of continuing professional development. Venepuncture and cannulation are key curriculum skills and student experience requires on-going monitoring and evaluation.
Take-home messages: Introduction of a logbook appears to have a positive effect on the number of procedures performed during clinical attachment and encourages students to seek learning opportunities during busy clinical attachments.

5I/2
When thoughts become actions: The detrimental effects of negative social-comparative feedback in medical trainees learning suturing techniques

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Background: Social-comparative feedback has been shown to influence learner self-efficacy beliefs and motor skill acquisition. This feedback is provided to make the learner believe that he/she is performing better or worse than the group average, regardless of his/her actual performance. Our objective was to examine the role of social-comparative feedback in medical trainees learning basic suturing techniques.
Summary of work: Novices (n=30) observed and practiced the simple interrupted suturing technique. Following this, trainees were divided into groups and shown fabricated performance summaries indicating that they were performing better or worse than their peers, regardless of their actual performance. Trainees were then asked to perform the horizontal mattress technique and following practice, again received positive or negative feedback consistent with their initial group assignment. A retention test was performed ~48hours later to infer learning of the horizontal mattress technique. Subjective variables of interest included self-reported situational motivation, self-esteem, and self-efficacy. Objective measures included expert assessment of video data, total skill completion time, and number of hand movements.
Summary of results: There were no group differences at baseline for self-reported outcome measures and on the pre-feedback manipulation task (simple interrupted suture). Those receiving negative feedback reported lower self-efficacy during acquisition and retention testing (horizontal mattress) compared to those receiving positive feedback (p=0.004), and required

significantly more time (p=0.031) and hand movements (p=0.046) to complete the task.

Conclusions: Our findings suggest that there is a significant relationship between negative social-comparative feedback and mindset that modifies performance, learning, and self-efficacy beliefs in medical trainees acquiring basic procedural skills.

Take-home messages: Providing social-comparative feedback can impact a trainee's psychological well-being and performance while learning basic suturing techniques.

5I/3
Technical skills podcasts are acceptable and useful to undergraduate students as an adjunct to simulation-based clinical skills teaching

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Background: We believe that Podcasts have significant potential in the teaching of procedural skills within the undergraduate medical curriculum. We embarked on a programme of podcast development focussing on common procedural skills required of the new medical graduate with the intention of creating high quality, gold-standard, reusable learning resources embracing the key podcasting features of portability and usability.

Summary of work: 12 technical skills podcasts were developed based on skills listed in Appendix 1 of Tomorrows Doctors 3. An evaluation was carried out with medical and nursing students participating in clinical skills sessions within the clinical skills centre.

Summary of results: Evaluations were returned from 460 medical students and 160 nursing students. 90% felt that using podcasts would make them feel more confident performing procedural skills in the clinical setting. All students would use the podcasts before, during and after clinical skills teaching sessions and would incorporate podcasts into their exam revision. 61% of students feel that access to learning resources while mobile is important to them and 80% would download these podcasts onto portable devices instead of streaming them online.

Conclusions: The use of podcasts within the clinical skills curriculum is acceptable to undergraduate students and students embrace the key features of portability and usability.

Take-home messages: Podcasting is an effective educational method to maximise the use of the student's time within the clinical skills lab.

5I/4
Videopodcasts in a "blended learning" approach to medical skills training

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Background: This study aims to challenge the traditional tutor based teaching of practical skills in the Clinical Skills Centre and other experimental settings. The concept of learning was changed to "blended" as the teachers constructed an online task as preparation for the practical lessons. The online lessons consisted of a combination of videopodcasts and e-tests.

Summary of work: The project included designing production standards for "practical skills videopodcasts - setup and content", rethinking curriculum, implementation of the videos, and understanding the teacher's role. The evaluation included student questionnaires and the teacher evaluations.

Summary of results: Students generally evaluated that the use of videos enhanced their performance and the learning outcomes. Teachers tell that the face-to-face lessons became more efficient due to the new standards for student preparation. The results also show that podcasts interact positively with the students' Personal Learning Environment (PLE) and give us a hint on how students manage their learning process using the videopodcasts both for preparation and for additional purposes as well. Students underlined the importance of the validity of the videopodcasts we produce ourselves in contrast to what they can browse on the internet.

Conclusions: Students seem to perform better and have more time to practice the clinical skills in class when preparation includes videopodcasts. The students willingly use the instructional videos in their self-organized studies after the tutorial sessions.

Take-home messages: The use of videopodcasts in blended learning around clinical skills training is considered to be of great importance among students and teachers.

5I/5
Lay-Person Facilitated Intimate Examination Training: a Systematic Review

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Background: Intimate examinations play a key role in the diagnosis of disease and are a required competence for healthcare professionals. Intimate examination training emphasises the importance of the required combination of technical, interpersonal and communication skills. Current methods to deliver training include video demonstration, simulation utilising manikins, physician-led within clinical settings and patient-led training. The objective of this study is to undertake a high quality systematic review of published randomised controlled trials (RCTs) and controlled studies comparing patient-led training with any other method of training.
Summary of work: A meta-analysis of all relevant RCTs (n=10) and controlled studies (n=13) evaluating lay-person led training compared to any other training method with pooled and adjusted outcomes reported for technical competence, communication and interpersonal skills, participant anxiety and evaluation.
Summary of results: Our high quality systematic review will report and interpret the results of published the meta-analysis and we look forward to presenting these at AMEE 2013.
Conclusions: There is no consensus regarding the optimal method for delivering intimate examination skills training. When completed, the pooling of results from individual studies will provide a fascinating insight into the efficacy of lay-person led training for intimate examinations and opportunities for further quantitative and qualitative research.
Take-home messages: This study highlights the potential for patient involvement in the teaching of healthcare students & postgraduates.
Educational studies should aim to be RCTs paying careful attention to CONSORT guidelines to provide the high quality evidence to plan the delivery of medical education.

5I/6
Moving towards autonomy: integrating simulated (surgical skills lab) and community-based practice during clerkship

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Background: For many decades, surgery clerkship was only inside a tertiary hospital. In the past years, major changes were made in the surgery curriculum including a rotation in an outpatient clinic. During one week, two students and the preceptor see all patients who need a small surgical procedure. All students had basic training before entering clerkship.
Summary of work: During 2012, 45 students (in couples), had one week to learn by doing basic procedures, under direct supervision. All the students were assessed with direct observed procedure skills (DOPS). The focus was on basic steps required to perform a surgical procedure in an outpatient clinic. DOPS were performed in the first and last day of the rotation. A self-assessment survey was also done. In the middle of rotation students had a 4hr practice on surgical skills' Lab. Another DOPS was done at the end of the rotation.
Summary of results: The direct observation showed that around 70% of the students start clerkship not performing well the basics of surgical procedures, and 90% said they didn't feel confident to do it without supervision. At the end of the rotation, 95% were above expectations after final DOPS and 70% answered "high" or "very high" confidence on doing the procedure without supervision.
Conclusions: The results of DOPS and self-assessment survey showed real gain on performance and consistent increase on students' confidence.
Take-home messages: Integration of Skills' Lab and real practice during clerkship seems to be a good strategy to improve performance, autonomy and create patient safety environments.

5J Short Communications: Postgraduate Education: General Practice/Family Medicine
Location: Club E, PCC

5J/1
Knows how, shows how, does? The impact of facilitated small group learning on GP trainees' consultation skills

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Background: Preparation for high stakes assessments such as the CSA (membership exam for the RCGP, UK) can lead trainees to focus on the assessment process and rigid consultation models rather than their knowledge and skills, resulting in them losing sight of the interaction at the heart of the consultation. This innovative programme of education aimed to help trainees gain insight into their consulting skills whilst preparing for the CSA. Using role-play with facilitated feedback, sessions helped trainees identify and focus on aspects of the consultation that required further development.
Summary of work: Trainees worked in small groups facilitated by three newly qualified GPs, the 'Near Peer Educators,' with recent experience of passing the CSA assessment. Each group met for four sessions, during which they role-played CSA-style thumbnail scenarios devised by the facilitators. During the first two sessions they gave and received feedback using the ALOBA approach; in the last two sessions feedback was structured using the generic RCGP marking guidelines. At the end of the programme, the trainees attended a mock CSA circuit comprising cases written by the facilitators. Trainees were scored using the RCGP marking scheme and received oral and written feedback. Feedback was gathered from participants (pre-, mid and post the programme), the group facilitators and the assessors.
Summary of results: Major benefits reported by the participants were: insight into areas for development, improved feedback skills and refocused learning needs. Facilitators reported observing improved consultation skills.

Conclusions: Approaches to learning that promote shared reflection and constructive feedback can have an impact on trainees' learning and consultation skills.

5J/2
Developing Integrated Dual-Residency Training in Family Medicine

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Background: The dual track residency program in Family Medicine at the Philippine General Hospital, Manila was designed to provide graduates with career options to become specialist practitioners, researchers, educators and public administrators. The program is composed of a 3-year residency training and 1-year postgraduate degree in Family Medicine. After 4 years of implementation, the high attrition rate prompted the institution to suspend admission of new trainees. Thus there was a need for program review.
Summary of work: Following the Research and Development design, a web-based survey was sent to the 13 trainees to enumerate all enabling and inhibiting factors that contributed to their performance. The intended and actual programs were analyzed. Based on the identified deficiencies in the comparison, the appropriate curricular components were added and methodologies were changed.
Summary of results: Trainees reported coverage of concepts, principles and theories in the postgraduate classes interspersed with actual clinical experiences in the hospital redundant and inconsistent. Within the first 3 years of residency, trainees take formal postgraduate courses and render service in the hospital. The changes in response to these findings revitalized the residency training to become integrated and competency-based. The connecting threads were: (1) application of the core values of family medicine to clinical practice, teaching, research and management; (2) development of library for that contain sample clinical cases, articles and templates of teaching-learning activities and assessment instruments and (3) faculty development.
Conclusions: The dual track residency training was revitalized using curriculum integration by connecting the thread of overlap between clinical residency and postgraduate degree in family medicine.
Take-home messages: A novel training program that is encountering implementation problems that can lead to its failure can be revitalised by conducting a program review. Findings of the review can be used to make necessary revision in the curriculum design, learning strategies and evaluation system.

5J/3

Ambulatory procedures skills training in graduate medical education: Are primary care oriented training programs doing enough?

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Stacy Higgins (Emory University School of Medicine, Atlanta, United States)
William T Branch (Emory University School of Medicine, Atlanta, United States)

Background: Procedure training is a valuable aspect of preparing trainees to practice safely and independently. As such, ambulatory procedure training is an important task of primary care oriented training programs.
Summary of work: We surveyed 61 primary care (PC) internal medicine training programs in the US to assess how these programs provide ambulatory procedural training.
Summary of results: Programs routinely provide training in ambulatory procedures including pap smear(97.4%), arthrocentesis(94.9%), incision and drainage(68.4%), skin biopsy (63.2%), and cryotherapy(52.6%). Less than half provide training in suturing, splinting, toenail removal, colposcopy, IUD placement, endometrial biopsy, sigmoidoscopy, or treadmill stress testing. Teaching methods include models (63.2%), lectures (47.4%), instructional media (34.2%), ambulatory procedure clinic (36.8%), procedure skills lab(28.9%), and standardized patients (13.2%). Procedure clinic and skills lab are often used to teach arthrocentesis and pap smear. The majority rated the typical graduate as competent to perform pap smears (91.9%) and arthocentesis(73.7%). Approximately one third felt graduates required more training and half were unable to assess competency to perform other ambulatory procedures.
Conclusions: Ambulatory procedure training among PC programs emphasizes training in two key procedures, pap smears and joint injection and aspiration. Specialized methods such as procedure clinic and skills lab were employed most often with these key procedures and competency rates were high in these procedures. Training in other ambulatory procedures was limited in scope and practice yielding lower competency rates.
Take-home messages: Ambulatory procedure training heavily emphasizes key procedures. Revisiting this focus and methods used may add depth and breadth to ambulatory procedure training.

5J/4

Mind the Gap: using EBL as a platform for transition in General Practice training

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Background: General Practice (GP) trainees in their first two years of training attend monthly educational sessions focused on their needs as a future GP. We introduced a new programme using Enquiry-Based Learning (EBL), which blends aspects of the facilitated small group work used in the final year of GP training and Problem-Based Learning.
Summary of work: EBL sessions took place for 68 trainees, divided into five groups across two centres. Learning was through case-based discussion and role play prompted by a written scenario. Groups were encouraged to identify their own learning needs and to develop skills in team working and self-directed learning. We distributed questionnaires to all participants after each session and at the mid-point and end of the year.
Summary of results: The sessions were generally well received by the trainees. The questionnaire response rate was 78%. 92% of respondents agreed or strongly agreed that sessions improved their skills in reflection and ability to learn in a group. The majority of trainees reflected on EBL sessions afterwards or used them in clinical practice. Themes from trainee comments highlighted the sessions' relevance to General Practice, peer support and interactive nature.
In addition to the clinical topic of each session, trainees recognised strands of the curriculum embedded vertically across all sessions, such as consultation skills.
Conclusions: EBL can be used to help GP trainees on their educational journey by bridging the gap between hospital-based education and GP training. This is both in terms of the educational style and also content, with vertical GP-focussed curriculum strands embedded across sessions.

5J/5

Learning together: GPs and Paediatricians in primary care

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(Presenter: Chloe Macaulay, London Deanery, School of Paediatrics, 32 Russell Sq, Stewart House London WC1B 5DN, United Kingdom)

Background: Integrated care is a developing framework within which the care of children is delivered in the UK. We sought to extend the integrated care model to include those in postgraduate training for general practice and paediatrics
Summary of work: 5 London secondary care paediatric units were identified where supervisors wished to extend paediatric training into primary care, building on systems where experienced paediatricians had taken

their skills into community clinics. 'Learning together' sessions were established where patients encountered trainees in GP together with trainees in paediatrics. Clinical supervision was arranged remotely from the secondary care unit, and on site by a GP supervisor.

Summary of results: Patient mix was wide, comprising acute and long term illness. Patient satisfaction was evident with this new system, and joint learning similarly so. Paediatric trainees learnt about the context of community work, the key descriptors of primary care and systemic aspects of child health. GP trainees augmented their paediatric knowledge in a direct manner. Overall the value of experiential learning in a new clinical context was very powerful

Conclusions: Placing learners in new clinical environments and systems pays dividends in teaching and learning, though attention must be paid to the governance and patient safety aspects. As service delivery moves increasingly from secondary to primary care, new models of education must follow. This pilot suggests an effective way of making this happen

Take-home messages: Innovation in the clinical learning context is to be applauded, and demonstrates tangible results. It best happens where there is clear preparation, delivery and follow up. Working across the hospital/community divide is a necessary and productive adjunct to good learning.

5K Short Communications: Preparation for Practice 1
Location: Club B, PCC

5K/1
PIQUE'ing an interest in faculty development

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Background: Most medical schools in South Africa have as their overall aim for undergraduate medical education, the preparation of graduates for internship. If we are to reach this aim, one of the ways to evaluate this would be to explore whether our graduates indeed feel able to do the things that we think they should, or could, be doing in their internship.
Summary of work: The Preparedness for Internship Questionnaire (PIQUE) was designed based on Hill's preparation for hospital practice questionnaire, with additional questions covering graduate attributes and the profile of the Stellenbosch doctor. The questionnaire asked the participant to respond to a series of statements preceded by "My undergraduate medical training prepared me to …" with "fully", "well", "fairly well", "little" or "not at all" prepared. Open-ended questions allowed elaboration on other issues. In July 2012 an invitation to participate in the online survey was sent to all the 2011 Stellenbosch MB, ChB graduates.
Summary of results: There was a 36% return rate. In general graduates felt that they had been well prepared for most mainstream clinical activities. However, there were also a number of areas in which respondents felt they could have been better prepared - largely in the areas of pharmacology, medico-legal work, minor surgery and the non-clinical tasks which an intern encounters.
Conclusions: Using this questionnaire has highlighted non-clinical areas needing attention within our curriculum.
Take-home messages: Identifying the areas in which graduates feel less well prepared for internship may serve as a method of piquing faculty's interest to develop skills to address these unmet needs.

5K/2
Junior doctors' views about how prepared they are for starting work by their undergraduate medical training

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Background: Norwich Medical School at the University of East Anglia (UEA) has a novel, patient-centred curriculum. This study was designed to evaluate how well prepared the graduates are for their Foundation Years.
Summary of work: 192 of 312 junior doctors in the local region, including 78 graduates from UEA, completed a questionnaire during their first 4 months of work. Respondents rated how prepared they felt by their medical school training for each of 53 items.
Summary of results: Generally junior doctors agreed that medical school had prepared them well for work tasks. But differences emerged in how prepared they felt, related to the skill being rated. For example, junior doctors felt less well prepared to cope with responsibility, uncertainty, time-management, paperwork, dealing with acutely unwell patients and those with complex needs in comparison to history taking, examination, communication skills and team-working. UEA graduates felt at least as prepared as graduates from other medical schools; for 10 items they felt significantly better prepared. Full details will be presented.
Conclusions: Despite ongoing developments to undergraduate medical curricula graduates still feel unprepared to work in some areas. For some skills improved local inductions are required to better prepare junior doctors for the specific context in which they are working. Having identified areas of perceived unpreparedness we can make recommendations for both medical schools and employing hospitals to improve the transition from medical student to junior doctor.
Take-home messages: Junior doctors still feel unprepared for some aspects of work after medical school.

5K/3
Intern preparedness to practise, an examination of a transnational approach to medical education

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Background: The Royal College of Surgeons in Ireland (RCSI) has been providing undergraduate medical education in Ireland since 1886 and internationally for more than half a century. RCSI operates the largest medical school in Ireland with an enrollment of more

than 350 medical students across three continents entering into highly variable post graduate training systems worldwide.

Summary of work: We examined intern preparedness with the Preparedness for Hospital Practice Questionnaire of graduating students (2010/11).

Summary of results: 43% of students responded to the survey. 39% domestic students/interning locally; 14% overseas/interning locally; and 42% overseas/interning internationally. Overall preparedness was rated at 'somewhat adequately' prepared (3/5) or better. Overseas students rated themselves better prepared than domestic and overseas/locally interning counterparts in several domains: interpersonal skills, confidence, prevention, holistic care, and self directed learning. Core indices such as collaboration, management and science were not different amongst medical graduates.

Conclusions: Preparing for internship is a multi-faceted relationship between learners, medical schools and health systems. This study has revealed variation between RCSI campuses and between local and international students in terms preparedness. Core indices were similar to all students. However, students from overseas returning to international internships reported greater preparedness across several indices, which may be attributed to student characteristics and exposure during medical school. Efforts should be taken in order to ensure all new medical graduates receive preparation for internship appropriate to their destination.

Take-home messages: Core indices of collaboration, management and science delivered served all graduates of RCSI regardless of internship/destination. Yet levels of preparedness vary, attributed to the student and learning environment.

5K/4

Dealing with the Hidden Curriculum: An Assessment of Coping Strategies in First Year Clerkship

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Background: Many undergraduate medical programs have incorporated clinical exposure into the first two years of their program. It is not until clerkship, however, that students have the opportunity to deal firsthand,

and often alone, with patients. This is also their first real exposure to the "hidden curriculum".

Summary of work: The purpose of this study is to identify types of stressful and unexpected situations clinical clerks are exposed to early in clerkship and examine the evolution in coping strategies over the first year of clerkship. The study uses a mixed methods design. The Coping Inventory for Stressful Situations (CISS) was administered to first year clerks at Dalhousie University. Qualitative data from focus groups were recorded, transcribed and analyzed using content analysis.

Summary of results: Fifty nine (49%) students responded. The quantitative CISS data showed that students seek support from others. Sleep and food are often used to deal with stress. The majority work to learn from their experiences. Recurrent focus group themes included: feeling isolated, the degree of responsibility, lack of knowledge, disillusionment and unprofessionalism by staff.

Conclusions: Students face many unanticipated challenges when they first enter clerkship. The use of a standardized tool to identify coping strategies and how they evolve provides useful information that can assist in planning curriculum that supports and prepares students for training transitions.

Take-home messages: The transition to clerkship is difficult. The results from this study will be used to design faculty development programs which raise awareness of the clerk experience and ways in which faculty can support the students.

5K/5

Early indicators of medical students' successful transition to clinical training: clinical tutors' views

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Background: Medical students differ in their ability to adapt to the initial year of clinical training and to accomplish the learning objectives: communicating with patients and integrating theoretical knowledge to the clinical practice. Here, we report the perceptions of clinical tutors regarding the students' features and behaviors associated with a successful transition to the clinic.

Summary of work: Eight individual and semi-structured interviews of experienced clinical tutors were conducted, transcribed and analyzed using open coding procedure, according to the Grounded Theory.

Summary of results: One of the emerging categories, referred to as "transitional markers", describes the early indicators of students' successful transition to the clinical learning. These comprised cognitive and attitudinal elements; for example, the abilities to 'use a nonlinear reasoning', to 'act autonomously'; and to develop a 'sense of responsibility and rapport with the patient'. Emerging concepts could be organized along five dynamic axes: 'from the theoretical to the practical knowledge', 'from simulated to real patient/scenarios', 'from the automatic to deliberate action", "from dependence to independence and autonomy 'and 'from lower to a higher quality of tasks'.

Conclusions: Clinical tutors identify a set of cognitive and attitudinal resources as markers of students' ability to succeed in the transition from the classrooms to the clinical training. Some of them are of common to other professions while others are specific to the medical practice.

Take-home messages: It can be of interest for clinical tutors and medical educators to identify and foster the development of transitional markers, in order to help students ease the transition to the clinic, and accomplish more readily the learning objectives of this curricular phase.

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5K/6

An educational intervention to improve the crucial non-technical skills of handover, referral and calling for help

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Background: Calling for help, referring patients to other specialties and handing over care to colleagues are core skills required by healthcare professionals and crucial for newly qualified doctors. Traditionally medical students were given little or no training in such skills. Training may improve handover but limited evidence exists with regard to clinical impact. The role of educational interventions in the areas of escalation of care and referring to other specialties remains unclear.

Summary of work: University of Edinburgh students partake in a student assistantship in final year. Many remain in the region for foundation posts, receiving an induction week prior to starting. A two-step, small group workshop was developed aiming to train students in these areas. The first session focuses on training in calling for help and referrals, while the second focuses on handover to the hospital-at-night team. Both involve a combination of interactive tuition, audio-visual examples and case-based opportunities to practise the skills in a structured fashion.

Summary of results: Initial feedback suggests that the sessions were perceived as extremely relevant, providing them with more confidence to begin employing the skills. Further qualitative data will be presented.

Conclusions: Specific training for in handover, referral and escalation of care can help undergraduate medical students in their transition to junior doctors, equipping them with some of the non-technical skills that are likely to prove essential in their professional life.

Take-home messages: Training undergraduate medical students how to refer, handover and call for help can help prepare them for work as junior doctors and, ultimately, may save lives.

5L Short Communications: International Medical Education 1

Location: Club C, PCC

5L/1

Effective Communication with Patients, Families & Colleagues: Development & Evaluation of an Online Program for International Medical Graduates (IMGs) in Newfoundland and Labrador (NL), Canada

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Background: Effective communication is an essential skill for all physicians. While such skills are often taught in Canadian universities, many International Medical Graduates (IMGs) often receive little or no specific training in this area. They may also face additional communication challenges as they assimilate into the Canadian cultural and medical environment.
Summary of work: Literature review and environmental scan; instructional design of online modules combining didactic instruction, video, asynchronous discussion, and assessment; and development of a logic model approach for evaluation.
Summary of results: IMGs' educational needs related to patient/colleague communication in Canada and NL were identified. The program is presented around three modules, each addressing a different theme of communication; Patient-Centred Interview, Cultural Differences, Understanding Relationships. Modules are to be launched on the MDcme web portal (www.mdcme.ca) by July 2013. Participant assessment will include: pre/post program confidence; pre/post module knowledge; post-module satisfaction; and six months' post-program outcomes to determine impact of the program on participants' confidence, use of knowledge/skills, and patient outcomes.
Conclusions: The role of communicator has been identified as one of the CanMEDS framework physician core competencies, yet an IMG's training may not translate appropriately into North American culture. Effective communication is critical for optimal patient outcomes. This program will provide IMGs practicing in NL with the necessary knowledge and skills to communicate effectively with patients, families, and colleagues.
Take-home messages: A communications program for IMGs at varying stages of training and practice-readiness

is necessary and helpful in effectively transitioning them to work and live in Canada.

5L/2

OSCE Rater-Based Assessments as an Alternative to Standardized Language Proficiency Tests for IMGs

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Background: A practice readiness OSCE for IMGs assessed history taking, physical exam, problem definition & diagnosis, investigation & management, communication skills (CS) and quality of spoken English (QSE). Our belief was that simulated patient (SP) and physician examiner (PE) raters would be sufficiently equivalent on CS & QSE, and these ratings could be a preferred substitute for English language proficiency tests.
Summary of work: Two consecutive annual 12 station OSCEs included 1708 PE and SP ratings for CS and 1720 ratings for QSE. Global ratings with behavioral anchor ratings from inferior (1) to excellent (6) were used as an alternative to checklists.
Summary of results: Paired-samples t tests were conducted to compare PE and SP ratings. For QSE, the results showed no difference between PE (M=3.43, SD = .81) and SP (M=3.45, SD = 1.04), t(859)=0.56, p=.58. The 95% confidence interval for the mean differences between the two ratings was 0.05 to 0.09. For CS, the results also showed no difference; PE (M=3.30, SD = .31) and SP (M=3.36, SD = 1.07), t(853)=0.08, p=.58. The 95% confidence interval for the mean differences between the two ratings was 0.01 to 0.13. For both CS and QSE, we also compared ratings across individual examinees, the differences between PE and SP was minimal, no examinees had a statistically significant difference between the PE and SP rating.
Conclusions: Our findings suggest to us that assessing IMG CS and QSE in a clinical context is a reasonable alternative for English language proficiency.
Take-home messages: An additional 3 years of retrospective data will be reviewed.

5L/3

An adaptation of Problem Based Learning (PBL) to improve Clinical Reasoning Skills of International Medical Graduates (IMGs)

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Background: As tutors of overseas-trained doctors preparing to work in the UK, we became aware of differences in approach to dealing with clinical problems, specifically clinical reasoning.

Summary of work: Problem-based learning (PBL) was adapted to deliver weekly sessions over a 6 month period. Several issues emerged and the delivery of the sessions was modified to address these.

Summary of results: Participants in general were not used to working in small groups, nor did they appear to be familiar with the hypothetico deductive model of clinical reasoning, or comfortable with admitting they did not know something but were going to find it out. Issues linked to medical practice and culture in the UK were poorly understood including teams in the NHS, the social context of many illnesses, epidemiology, health beliefs and colloquial language.

Conclusions: IMGs will be expected to use clinical reasoning techniques throughout their careers in the UK. There are cultural and educational reasons why they are unfamiliar with PBL and why they may face difficulties using the techniques in clinical practice. 'Unknown unknowns' due to lack of exposure to life and clinical practice in the UK need to be uncovered by tutors and addressed directly.

Take-home messages: It may be useful to include training in PBL as part of an induction programme for IMGs coming to study and work in the UK, with the clinical reasoning, group working skills, understanding health beliefs and the social context of care in the UK aspects made explicit.

5L/4
"Back to basics": building a framework for understanding international medical trainees' challenges

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Background: Studies have highlighted the unique needs of International Medical Graduates (IMG) during their transition into medical training programs and practice. This study aims to build on previous frameworks and to further elucidate IMG training needs by studying the transition of IMG trainees into fellowship training programs.

Summary of work: We conducted a two-phase study involving Psychiatry and Surgery IMG fellows and supervisors. During Phase 1, we administered an online survey to fellows and supervisors during the first 3 months of fellowship training to assess resources and potential challenges in clinical communication, health systems and education domains. Survey data was analyzed using descriptive and Mann-U-Whitney statistics. In Phase 2, IMG fellows were interviewed during the latter half of their fellowship. Interviews were analyzed using a grounded theory approach.

Summary of results: The survey response rate was 72% (n=70). Compared to fellows, supervisors perceived IMG fellows to have greater challenges in sever domains including team communication (p<0.001), patient communication (p<0.001), adapting to the healthcare system (p<0.001), Canadian language/slang (p<0.001) and social adjustment (p=0.001) and specialty specific clinical skills (p=0.002). Fellow qualitative interviews (n=10) reached theme saturation and generated the following themes: disorientation, disconnection, challenges with interprofessional teams, need for support, and the benefit of a multicultural training environment.

Conclusions: IMG fellows and supervisors in Psychiatry and Surgery had differing perceptions on fellow training needs. Moreover, IMG fellow needs could be re-classified using Maslow's Hierarchy of Needs, which provided a framework for understanding IMG performance.

Take-home messages: Frameworks rooted in trainee needs can be useful in early identification of IMG training issues. Orientation curricula and early support are important to IMG adaptation to training and enhancing success.

5L/5
Using the Erasmus Framework to build a European medical Curriculum: A first step, the JPEMs Program

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Background: Medical students meet difficulties in obtaining the acknowledgement of a period of study abroad. Erasmus exchanges allow the students to discover other countries and health systems but the academic added value is sometimes debatable.

Summary of work: Seven medical schools (Angers and Nantes, France; Amsterdam VU University, Netherlands; Cluj-Napoca and Timisoara, Romania; Szeged, Hungary; Napoli Secunda University, Italy) have built a full semester intended for second or third year MS, (the Joint Program of European Medical Studies –JPEMS).

Summary of results: Content: 6 modules (Physiopathology, Immunology, Micro-biology, Genetics, Medical English and Medical Informatics) + a full time placement in a research laboratory of five weeks. JPEMS was organised in Angers in 2011, Nantes in 2012, and will take place in Angers in 2013 and Szeged in 2014. It is fully credited in the home curricula for all students. Teaching is provided by academics from the different universities (13 visiting academic staff) in English, for a group of 38 in 2011. Introduction into research was the main motivation of 20% of the students; 90% of the

students rated the program as good or very good; The proposals of the students to improve the program were: less lectures, more handouts and teaching material, better coordination to avoid redundancy. The tutorials and practical sessions were best evaluated.

Conclusions: This experience shows that it is possible to share some bricks of the medical curriculum between European universities. The journey towards double diploma in medicine remains long and the obstacles due to national regulations and language barriers are significant.

5M Short Communications: Selection: Situational Judgement Test
Location: Club D, PCC

5M/1
Assessing non-academic attributes for medical and dental school admissions using a Situational Judgement Test

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Background: Applicants to UK university medical and dental schools are of a consistently high calibre with regards to their academic qualifications. The UK Clinical Aptitude Test (UKCAT) is used by a consortium of universities to help them make more informed choices from amongst the many highly qualified applicants who apply for the medical and dental degree programmes. The UKCAT currently consists of tests of verbal, quantitative and abstract reasoning, as well as a decision making analysis test. A newly designed situational judgement test (SJT) was piloted as a selection method to evaluate important non-academic attributes deemed appropriate in medical and dental students as part of the UKCAT.
Summary of work: The SJT targets three domains: integrity, perspective taking and team-involvement. Test content was developed by medics and dentists (N=38) and experienced psychometricians (N=5). 18 test forms were piloted, and each test form contained 13 scenarios. Each scenario asked applicants to rate between 4 and 6 response options and two formats of rating scales (1 to 4 scale) were used; very appropriate to not appropriate at all, and very important, to not important at all. The SJT pilot was completed on-line alongside the other UKCAT tests. A total of 25, 431 applicants sat the pilot.
Summary of results: Initial results show the SJT to have good levels of reliability (α=.75-.85). Initial evidence of criterion-related validity was established as applicant scores on the SJT correlated significantly with the other UKCAT tests. On average, the SJT correlated more strongly with the verbal and decision making analysis test than with the numerical and abstract tests.
Conclusions: An SJT is a reliable and valid selection methodology for testing important non-academic attributes for entry to medical and dental school.
Take-home messages: An SJT is a reliable and valid selection methodology for testing important non-academic attributes for entry to medical and dental school.

5M/2
Design of a new Situational Judgement Test (SJT) to assess the professional attributes of UK junior doctors

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Kim Walker (UK Foundation Programme Office, Cardiff, United Kingdom)
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Background: Having completed medical school training, students apply for a junior doctor post as part of the UK Foundation Training Programme. It was recommended that alongside an educational performance measure, an SJT was implemented to assess relevant professional attributes (eg integrity, teamwork) to replace the open-ended competency-based application form.
Summary of work: This project describes the design, piloting (N=1094) and analysis of an operational SJT for selection of approximately 8,000 medical students in 2013, including a job analysis to identify the professional attributes expected of Foundation training doctors.
Summary of results: Psychometric analysis provided evidence that the SJT is a reliable measurement methodology in this context and overall is able to differentiate between candidates. Early evidence was found for criterion-related validity. Feedback indicated that candidates felt that the SJT was relevant and fair.
Conclusions: The SJT is a reliable and valid methodology to facilitate the appointment of junior doctors to the 2013 Foundation Programme.
Take-home messages: A robustly designed SJT will enhance the predictive validity of the selection process and improve standardisation nationally. SJTs draw on non-cognitive attributes that cannot easily be targeted through traditional exams and reflect the challenging interpersonal context that junior doctors work within.

5M/3
Reliable Pre-interview Selection of Domestic and International Post-graduate Candidates: Computer-based Situational Judgment Testing

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Background: Most post-graduate training candidates are excluded at the pre-interview stage without benefit of personal/professional qualities assessment. Can Computer-based Assessment for Sampling Personal Characteristics (CASPer), successful in undergraduate admissions, be a useful pre-interview screen for domestic and international (IMG) post-graduate applicants on intrinsic CanMEDS roles?

Summary of work: All domestic and IMG applicants to the Orthopaedic and IMGs to Paediatrics training programs at McMaster completed CASPer as part of their pre-interview process. CASper, completed online, consists of 12 sections (eight video-based and 4 self-descriptive), on various intrinsic roles. Applicants have 5 minutes to type responses to 3 follow up questions/section.

Summary of results: 162/178 (Ortho) and 213/281 (Peds) completed CASPer as part of pre-interview selection. Mean CASPer scores in Ortho differed significantly between domestic (3.85) and IMG (2.7, p <.001) applicants. Peds IMG scores were similar (mean = 3.0). However, there was considerable overlap in CASPer scores with similar maximum average scores for IMGs (5.25) and domestic (5.08) applicants. The overall test reliability for CASPer was 0.84. Overall reliability for domestic was lower (G = 0.65) compared to international applicants (G = 0.85, 0.77 for orthopaedics and pediatrics respectively).

Conclusions: While overall test reliability is very good for CASPer in general, results in the more homogeneous domestic applicant pool were lower. Long-term predictive validity and diversity issues need to be addressed.

Take-home messages: Initial results indicate that CASPer demonstrates potential as a feasible and reliable measure of personal/professional characteristics in the pre-interview assessment of post-graduate applicants.

5M/4
Can a Situational Judgement Test (SJT) measure cognitive aspects of communication skills for shared decision making in medicine and teaching education?

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Background: There is an ongoing discussion to what extent written or computer-based assessment formats can assess communication skills especially in the early years of undergraduate training in medicine and in teaching education.

Summary of work: We created different learning modules to train students´ communication skills for shared decision making (SDM). To assess the effectiveness of the modules, we developed two encounters with standardized patients (SPs) and a computer-based test (CBT). We compared three different training conditions experimentally against a control group. Testing time for the CBT was 30 minutes. The SJT consisted of eight vignettes with one to two MCQs each (15 questions) plus seven questions with context-poor stimulus. Tests for medical and for teaching students were adapted to their professional context but had the same structure.

Summary of results: 72 medical students and 96 teaching students took part in the study. In the CBT, mean scores were 15.5 points (max. 22 points) for medical students and 12.8 point for teaching students. Item difficulty ranged from 32% to 94%. Cronbach's α was .590 for "medicine" and .368 for "teaching". Cronbach's α was lower for the SJT part than for the context poor questions. Differences for the training conditions and correlations between CBT and SP encounters will be analysed.

Conclusions: Our SJT did not reach an acceptable reliability. Questions with context-poor stimulus questions increased α but their validity is debatable.

Take-home messages: Further steps of validation are needed to support the SJT to assess cognitive aspects of communication skills.

5M/5
Video based Situational Judgement Test Of Social Competencies In Medical Student Selection

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Background: A video based situational judgment test (SJT), measuring 6 essential social competencies relevant for undergraduate medical education (self-discipline, self-reflection, respect towards others, the ability to criticise and accept criticism, searching for appropriate support and the ability to establish contact with others), was developed at the Medical Faculty of Heidelberg in 2012/2013 and will be integrated as a voluntary online-self-assessment in medical student selection.

Summary of work: From May to July 2013 applicants to the Medical Faculty of Heidelberg will be asked to participate in the SJT that will comprise 25 situations of challenging social interactions that typically occur in undergraduate medical training. Participants will also be asked for the grade of their university entrance qualification (Abitur), their Medical Aptitude Test-score (TMS), the self-assessment of their social competencies and the acceptance of the SJT.

Summary of results: Results of factor structure, correlations with cognitive criteria (university entrance qualification, TMS-score), social criteria (questionnaire for social competencies) and acceptance of the SJT will be presented at the AMEE conference.

Conclusions: A further validation-study involving undergraduate medical students is planned, that will test correlations with intelligence, personality, grades of undergraduate medical study and achievement motivation.

5N Short Communications: Teaching and Learning: Team Based Learning

Location: Meeting Room 2.1, PCC

5N/1
Team-based learning (TBL) is effective in the education of geriatric medicine

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Background: Team-based learning (TBL) is an effective method for students to learn through discussion. Evaluation of students can also be performed at the same time. We used TBL for geriatric education and analyzed the difference between TBL and lectures.
Summary of work: Two TBL sessions were performed for the 4th year and one for the 5th year medical students during a lecture-TBL series of geriatric education. Students filled out questionnaires after each TBL and lecture. The scores of TBL and the final examination were analyzed and compared to traditional lecture series.
Summary of results: Overall evaluation of TBL by the questionnaire was similar to lectures (81.9 vs. 81.7). Although some students pointed out they were not used to clickers, many students thought TBL made them think thoroughly about subjects during small group discussions. Scores of final examination were better after lecture-TBL series compared to traditional lecture series (78.6 vs. 74.2, p<0.05), whereas the correlation between scores of TBL and final examination was low (r=0.27).
Conclusions: Although overall evaluation of TBL by questionnaire was similar to lectures, many students found TBL to be more effective through small group discussions and the score of the final examination was better after TBL. TBL score might be a different parameter from final examination since the correlation between them was not good.
Take-home messages: TBL seems to be an effective method for students to learn through discussion, but more study needs to be done to decide how to use the TBL score.

5N/2
The Team-based learning improves students' performances at the Undergraduate Nursing Course

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Carlo Ruffinengo (University of Turin, Undergraduate Nursing Course, Turin)
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Fulvio Ricceri (University of Turin, Biotechnology, Turin, Italy)
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Background: Team-based learning (TBL) is a teaching methodology that fosters active participation in the classroom and encourages critical thinking, however, it has rarely been applied to nursing education. The aim is to implement TBL and assess its impact on nursing students and the repercussions on exam performances.
Summary of work: in the 2010/2011 academic year, first-year students engaged in 5 TBL sessions at the Undergraduate Nursing Course of the University of Turin. The subject taught was General Nursing Principles and Basic Care I. The level of satisfaction was evaluated by means of a questionnaire. The training impact was measured by comparing the examination performances with those recorded in the previous year, i.e. 2009/2010.
Summary of results: the TBL was tested by 207 students and 199 (97%) questionnaires were collected. The students remarked that TBL is an engaging methodology and 84% wished to extend its use to other subjects as well. The students' exam performances improved significantly (p = 0.0003).
Conclusions: TBL proved to be a popular teaching method among students and helped improve their exam performances. The results are limited to first implementation experience.
Take-home messages: Use of TBL applied to Nurse Education should be encouraged and results should be registered through the years.

5N/3
Team-based learning and its influence on competencies and teamwork related attitudes of medical students: a pilot study

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Jochen Brich (University of Freiburg, Department of Neurology, Freiburg, Germany)

Background: Team-based learning (TBL) seems to be a good method in order to achieve greater learning success and a better understanding in medicine. In this pilot study we explored whether specific competencies of medical students and their attitudes towards teamwork can be influenced by this method.

Summary of work: We conducted a TBL-seminar in Neurology with 17 third year students and a traditional seminar with 22 students. Participants responded to statements regarding their expertise in Neurology (6 items), their learning competencies (4 items) and their attitudes about team work (6 items). Data were collected at the first and/or the last session of the TBL and the traditional seminar. Data were analyzed by t-tests comparing means between as well as within groups.

Summary of results: We found no significant differences between the two groups in the last session of the seminars regarding the learning competencies, but a significant difference in self-rated neurological expertise (M(TBL) = 4.85 vs. M(SEM) = 4.14, p = .036, Cohen's d = 0.8). In addition, we found a significant increase in positive attitude towards teamwork within the TBL-group (e.g. M(T1) = 3.42 vs. M(T2) = 4.25, Cohen's d = 1.04).

Conclusions: The results of this pilot study point to the possibility that students' medical expertise and attitudes about working in teams may be altered through team-based learning-activities. Starting in April 2013, the main study will test this hypothesis by means of an experimental cross-over design with approximately 160 students and its results will additionally be reported.

5N/4
Fit for purpose: TBL use in undergraduate (medicine), diploma course and Master/PhD programs on Health Professions Education (HPE)

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Eliana M Amaral (Universidade de Campinas, Obstetric and Gynecology, Campinas, Brazil)

Background: New strategies have been proposed to teach large groups on a more collaborative and interactive way. Team based learning (TBL) is one of them. Despite being described for entire courses, many people have been using it as a hybrid approach.

Summary of work: The authors designed and tested TBL single modules for undergraduate, diploma course and Post-graduate programs (HPE). The number of students varied from 30 to 120. The chosen topics included HIV/AIDS, tuberculosis, pregnancy care and diabetes (medical students); positive deviance, curriculum design (Diploma Course); and positive deviance, TBL and problem based learning (HPE Master/PhD programs). Each module lasted from 2.0 to 4 hours. Students' perceptions were collected (Kirkpatrick's evaluation model).

Summary of results: Undergraduate students reported that TBL increased their engagement due to work together. Comparing with lectures students highlighted the possibility of theory application in clinical cases. HPE students (Diploma, Master/PhD) pointed the opportunity to experience TBL and learning by doing. Many participants (also Faculty members in their institutions) didn't know anything about TBL before that experience. Some participants (6/30) of Diploma course (Brazilian FAIMER Regional Institute) tried TBL with their students less than a month after their own experience.

Conclusions: TBL is a powerful strategy for both undergraduate and post-graduate students. The experience with TBL increases knowledge and confidence among teachers to understand and apply the method.

Take-home messages: Use TBL (design) for single modules and gain experience with it. Remember to explain the dynamics and offer the previous reading one week before. This could be the passport for the entire TBL course.

5N/5
An attempt to combine TBL and PBL. A hybrid for better clinical education

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Goh Ohji (Kobe University Hospital, Division of Infectious Diseases, Kobe, Japan)

Background: Both Problem Based Learning (PBL) and Team Based Learning (TBL) are used for the education of medical students. Combining these two might enhance their advantages, while offsetting their inherent shortcomings.

Summary of work: Our division implemented the original TBL/PBL hybrid program in teaching Clinical Infectious Diseases for 4th year medical student at Kobe University, Kobe, Japan since 2010. Unlike conventional TBL, we did not require the students to do homework prior to the program. Also conventional iRat and tRat was not given to them. Instead, we started with a case presentation like typical PBL. One case was presented per day, diagnostic approach was explored with an infectious disease specialist in one room, and one learning issue was assigned to each student to present on the following day.

Summary of results: Over 5 days of this TBL/PBL hybrid, students appeared better in asking appropriate questions, finding patients' problems, and reaching correct diagnoses. Surveys also indicated that this type of TBL/PBL was more interesting to them comparing to

conventional PBL conducted at the same period by other sections. Workload for teachers to prepare this program was relatively small, and feasible to the settings where not a lot of teachers were available.

Conclusions: A novel TBL/PBL hybrid program was attempted at our division. Teaching was given by an Infectious Diseases Specialist with detailed, rich context, while keeping problem based modality. Further evaluative effort should be given whether this type of educational activity contribute to the improvement of medical education.

Take-home messages: A hybrid of TBL/PBL might improve the effectiveness and efficiency of medical education, while offsetting of shortcomings of both.

5N/6
Changes in emotional intelligence related to team cohesion in a team-based learning environment during a medical school anatomy course

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Samuel Porter (Mayo Clinic, Mayo Medical School, Rochester, United States)
Nirusha Lachman (Mayo Clinic, Department of Anatomy, Rochester, United States)
Wojciech Pawlina (Mayo Clinic, Department of Anatomy, Rochester, United States)

Background: Emotional intelligence (EI), the ability to perceive and respond to emotions, has been shown to increase academic achievement and team performance. Studies to support this association exist largely in the business world, but its impact in medical education is relatively unexplored.

Summary of work: This study looked at change in emotional intelligence and cohesion within a team-based setting. This study hypothesizes that emotional intelligence scores would increase throughout the 7 week course and that a higher team EI score would have higher team cohesion. First year anatomy students were asked to complete the Self-report Emotions Intelligence Test (SSEIT) at the beginning and the end of the course as well as a survey rating team cohesiveness at the end of the course. Changes in EI sub-scales were compared to overall change in EI as well average team cohesiveness ratings.

Summary of results: During the course the average team EI score increased and correlated with student's change in perception of emotion. In addition, teams with lower cohesion scores seem to have difficulty with managing others' emotions.

Conclusions: This data suggests that team EI can change during team-based learning sessions and is dependent on team dynamics.

Take-home messages: EI, a relatively new concept, may play a role in assessing medical students, and establishing academically successful and productive teams.

5O Workshop: How to write a Multiple Mini Interview (MMI) station
Location: Meeting Room 3.5, PCC

Adrian Husbands (University of Dundee, Division of Clinical & Population Sciences & Education, The Mackenzie Building, Kirsty Semple Way, Dundee DD2 4BF, United Kingdom)
Jonathan Dowell (University of Dundee, Division of Clinical & Population Sciences & Education, Dundee, United Kingdom)

Background: The Multiple Mini Interview (MMI) has formed a major part of the admissions process at Dundee medical school for a number of years and continues to be adopted by medical schools worldwide. We would like to share our experience in writing MMI stations to all who are interested in implementing MMIs or further developing their existing processes.
Intended outcomes: We expect attendees to gain a thorough understanding of the MMI station development process.
Structure of workshop: We will first introduce the background to MMIs, highlighting our own research and experience in implementation. We will then discuss how to decide on which domains should be measured by the MMI. A combination of techniques, including group discussion and critical incident interviewing will be used to generate topics for station content for both traditional 'one-to-one' and role-play MMI stations. Finally we will develop and test-run some of our newly developed station ideas.
Who should attend: Anyone interested in or involved with medical school admissions.
Level: Introductory

5P Workshop: A consortium approach to revolutionising subject-based teaching in the medical curriculum of post-Soviet countries: What can ePBLnet teach us?
Location: Meeting Room 4.1, PCC

Ella Iskrenko (St. George's University of London, Division of Population Health Sciences & Education, Cranmer Terrace London SW17 0RE, United Kingdom)
Terry Poulton (St. George's University of London, Centre for eLearning in Medical Education, London, United Kingdom)
Viktor Riklefs (Karaganda Medical University, Clinical Skills Center, Karaganda, Kazakhstan)
Andrey Loboda (Sumy State University, The Faculty of Medicine, Sumy, Ukraine)
Sergo Tabagari (David Tvildiani Medical University, AIETI Medical School, Tbilisi, Georgia)
Panos Bamidis (Aristotle University of Thessaloniki, Lab of Medical Informatics, Thessaloniki, Greece)

Background: Many post-Soviet countries believe that their teacher- and classroom-based medical education would benefit from modernisation. An advantage of carrying out these developments as a consortium is that post-Soviet countries retain similar educational structures. Consequently there are similar challenges, and opportunities for cross-institutional solutions. ePBLnet is an EC-funded Tempus programme which is creating national medical education centres in Georgia, Ukraine and Kazakhstan. It will then modernise the biomedical science component of medicine in Karaganda, Astana, David Tvildiani and Zaporozhia Medical Universities, Sumy and Kutaisi State Universities, moving to learning styles with greater relevance to clinical practice. St George's University of London, University of Nicosia and Aristotle University of Thrace are leading this transformation, which is based on the St George's curriculum and includes an interactive PBL using 'virtual patients'. ePBLnet will link with other medical education networks with similar interests in curriculum development, and use this 'string of pearls' ePBLnetwork to generate the critical mass of academics/institutions needed for sustainable development.
Intended outcomes: Participants will analyse the transformation from the subject-based to PBL-based curricula within the consortium, consider opportunities for their own development, and the development of a relationship with the network.
Structure of workshop: An initial presentation will describe the common structure of Post Soviet curricula. Participants explore ways in which they could modify their own curricula (they may wish to bring a copy with them), and consider whether the cross-institutional approach of ePBLnet has potential for them.
Who should attend: Those interested in transformation of post-Soviet medical education, or modernising their subject-based teaching.
Level: Introductory

5Q Workshop: How to get your papers published in different types of journals
Location: Meeting Room 4.2, PCC

Erik Driessen (Maastricht University, Educational Development and Research, PO box 616, Maastricht 6200MD, Netherlands)
Janneke Frambach (Maastricht University, Educational Development and Research, PO box 616, Maastricht 6200MD, Netherlands)

Background: As a (young) researcher it is wise to think about your publication strategy: in what kind of journals are you opting to publish your papers? The journal with the highest impact factor? Or the journal that is read most by the teachers and policy makers? Or the journal in which the theory you just modified with your study is discussed widely? And what will be the effect of your publication strategy for your scientific career? In this workshop we will discuss four articles on the same topic published in four different types of journals. We will look at writing style, structure, the composition of the introduction and discussion sections of the papers? Next to the technical aspects, we will also discuss the ethical side of publishing in different types of journals: how far are you prepared to go to get your paper published in that high impact journal? For example: to what extent will you follow up requirements of the editors for modification of your paper?
Intended outcomes: More insight in how to plan a publication strategy. Awareness of the differences between journals and the impact this has on the reviewing of your paper.
Structure of workshop: After a short introduction we will discuss four articles on the same topic published in four different types of journals.
Who should attend: People who (want to) publish research about medical education.
Level: Intermediate

5R Workshop: Engaging faculty in education scholarship
Location: Meeting Room 2.2, PCC

Elaine van Melle (Queen's University, Centre for Studies in Primary Care, Kingston, Canada)
Mark Goldszmidt (University of Western Ontario, Centre for Education Research & Innovation, London, Canada)
Jocelyn Lockyer (University of Calgary, Faculty of Medicine, Calgary, Canada)
Vernon Curran (Memorial University, Academic Research and Development, St. John's, Canada)
Susan Lieff (University of Toronto, Centre for Faculty Development, Li Ka Shing Healthcare Education Centre, 209 Victoria St, 4th Floor, Room 480, Toronto M5B 1T8, Canada)
Christina St-Onge (Université de Sherbrooke, Dept of Medicine, Sherbrooke, Canada)

Background: Education Scholarship (ES) is a term encompassing both research and innovation in health professions education. To be of quality, ES has to be: peer-reviewed, publicly disseminated and provide a platform for others. ES is critical to the evolution and reform of medical schools and depends on faculty who are recognized and rewarded for their work developing curriculum and innovations, creating new assessment tools, and undertaking research and evaluation studies. A Canadian study identified six strategies to advance ES: creating a national understanding of ES; developing institutional guidelines to assess the impact of newer forms of ES; developing support systems for leadership and ES mentors; and creating explicit role descriptions and guides for faculty.
Intended outcomes: By the end of the workshop, participants will be able to (1) describe ES (2) identify strategies and approaches that could be used individually and within their Faculty and/or department to foster, recognize and support ES.
Structure of workshop: This workshop will begin with a brief overview of ES and a summary of selected research studies which examine recognition and reward systems for ES. Participants will then work in small groups to identify (1) the challenges encountered developing and getting ES recognized and (2) the approaches taken to advancing their careers through ES. This will be followed by an examination of the six strategies identified to advance ES with a focus on their applicability in different settings. The workshop will conclude by creating a set of 'tips' to guide individuals and leaders in developing and recognizing ES in their settings.
Who should attend: Educators and leaders interested in Education Scholarship
Level: Intermediate

5S Workshop: 'Falling outside the lines' - How do we identify, support and develop doctors who may need help communicating clearly?
Location: Meeting Room 3.1, PCC

David Blaney (Medical Protection Society, Educational Development, Granary Wharf House, Leeds LS11 5PY, United Kingdom)
Jane Kidd (University of Warwick, Educational Development and Research, Warwick Medical School, Coventry, United Kingdom)
Judy Purkis (University of Warwick, Educational Development and Research, Warwick Medical School, Coventry, United Kingdom)
Jill Thistlethwaite (University of Queensland School of Medicine, Centre for Medical Education Research and Scholarship, Herston, Queensland, Australia)

Background: Poor doctor-patient communication is a major source of patient complaints. About 5% of doctors are responsible for 50% of patient complaints and a significant number of the complaints result from ineffective clinical communication. The best ways of identifying such doctors and offering remediation are not known as the literature is limited and most interventions are with students or doctors in training. We report on the outcome of an intervention, the Clinical Communication Programme (CCP) that has been running since 2005 in UK, Australia, South Africa and SE Asia.
Intended outcomes: The workshop will explore the following: What do we mean by poor communication in patient-doctor consultations? How do we identify doctors who are poor communicators? What are the main communication issues? How do we remediate poorly communicating doctors? What are doctors' experiences of this intervention?
Participants will: Understand the effect of poor communication; Better understand the magnitude of the problem; Describe existing approaches at remediation; Describe how interventions may be evaluated.
Structure of workshop: Short opening presentation on scope of the problem, identification of doctors at risk, outline of the CCP and how we are evaluating the intervention. Group discussion on identification, remediation and outcome of interventions drawing on participants' experience and knowledge. Summarise workshop, drawing together output from group discussions.
Who should attend: Medical educators, clinical directors, and researchers interested in clinical communication.
Level: Intermediate

5T Workshop: The role of the teacher beliefs in effective teaching and remediation
Location: Meeting Room 3.2, PCC

Jennifer Cleland (University of Aberdeen, Division of Medical and Dental Education, Polwarth Building, Foresterhill, Aberdeen AB25 2AZ, United Kingdom)

Background: While a curriculum may be set out, this becomes shaped by teachers into something personal that reflects their own belief systems, their thoughts and feelings about both the content of their instruction and their learners. Thus, teachers' beliefs and conceptions affect their teaching practice and student outcomes (e.g., Bolhuis & Voeten, 2004).   In our area of interest, addressing underperformance, recent research suggests that certain teacher behaviours and roles may be critical to help students turn failure into success (Winston et al. Medical Teacher, 2012; Cleland et al., 2013).
Intended outcomes: To date, the literature on underperformance and remediation has focused on identifying the learner characteristics which predict underperformance. The aim of this workshop is to draw on the wider education literature to consider underperformance and remediation from another perspective: that of the role of the educators' roles and beliefs about teaching and learning.   Participants will be better able to use this understanding when planning effective remediation in their own medical schools.
Structure of workshop: Based on a Gagné framework the structure of this workshop will be a blended style using information provision combined with practical exercises and opportunities for reflection. Participants will be asked to draw upon their own beliefs, experiences and observations to consider the attributes and practices of medical educators required for excellence in assisting underperforming medical students across a continuum of academic and behavioural support (e.g., effective instruction for all through to individualised support).
Who should attend: All medical educators but particularly those with an interest in addressing underperformance.
Level: Intermediate

5U Workshop: Overcoming barriers in medical education: Fostering collaboration to improve innovation and research

Location: Meeting Room 3.3, PCC

Matthew Stull (University of Cincinnati College of Medicine, Department of Emergency Medicine, 231 Albert Sabin Way, PO Box 670769, Cincinnati 45267-0769, United States)
Robbert Duvivier (FAIMER, Philadelphia, United States)
Emily Bate (The Royal Liverpool University Hospital, Liverpool, United Kingdom)

Background: Medical education as an academic specialty can often feel isolating and frustrating as most institutions do not have large sources of support for medical education research or innovations. Collaboration provides the stamina needed to hurdle many barriers that can stand in the way of researchers. A collaborator brings a new perspective and skill set which can invigorate and take your work to the next level. The ability to collaborate is invaluable for young (by age or experience) researchers in medical education. Collaborating across disciplines, departments, institutions, and nations has its challenges but is rewarding both personally and professionally, especially if you are aware of strategies to mitigate these challenges.
Intended outcomes: By the end of this session, participants will:
Recognize instances when collaboration in medical education will benefit both you and your work;
Identify opportunities to find collaborators and ways to engage these collaborators effectively;
Demonstrate strategies to avoid and navigate conflict among collaborators.
Structure of workshop: This workshop will review both the pearls and pitfalls of establishing and maintaining collaborations by scholarly productive medical educators who met through attending past AMEE conferences. Workshop facilitators will review the evidence through interactive cases to demonstrate effective collaborations that can improve the medical education work being done locally. Participants will share their experiences in small groups, using facilitated discussion to define principles of best-practice.
Who should attend: Medical educators of any level who are seeking the opportunity to collaborate to build more robust research programs and innovations at their local institutions.
Level: Intermediate

5V Workshop: Using the Toolbox for Evaluating Educators: You be the judge!

Location: Room A, Holiday Inn

Maryellen Gusic (Indiana University School of Medicine, Dean's Office; Pediatrics, 340 W. 10th Street, Fairbanks 6200, Indianapolis, IN 46202, United States)
Henry Strobel (The University of Texas Medical School at Houston, Dean's Office; Biochemistry and Molecular Biology, Houston, TX, United States)
Patricia O'Sullivan (University of California, San Francisco School of Medicine, Office of Medical Education; Medicine, San Francisco, CA, United States)

Background: Significant progress has been made in defining the value of educational scholarship. Educators at many academic health centers continue to struggle with advancement and promotion because evaluators lack a standardized process to judge educator contributions. In response to this challenge, the AAMC Task Force on Educator Evaluation created resources to aid decision-makers in using clear, consistent and efficient evaluation processes for faculty whose career focus is in education. The product of a 3 year iterative process, the Toolbox for Evaluating Educators, provides indicators for evaluation in each of the five domains of educator activity--teaching, curriculum development, assessment, advising/mentoring and educational leadership-- using accepted frameworks and a common format.
Intended outcomes: Attendees will:
Apply tools from the AAMC Task Force on Educator Evaluation to review sections of a faculty member's portfolio
Justify decision-making based on the rigorous application of criteria for evaluation
Create a plan to disseminate the Toolbox at one's home institution
Structure of workshop: In this workshop, attendees will participate in interactive, hands-on activities to apply the criteria in the Toolbox to evaluate sample promotions dossiers. To demonstrate the flexibility of the Toolbox, in facilitated large group discussions, the audience will explore, how the evidence-based rubrics can be employed to make fair and rigorous decisions consistent with their own institutional contexts and guidelines. Each participant will leave the session with ideas about how one can implement use of the Toolbox at his/her home institution.
Who should attend: educators and those who evaluate and mentor educators,
Level: Advanced

5W Workshop: ASPIRE excellence in student engagement: hands-on training in submission preparation
Location: Room B, Holiday Inn

Marko Zdravkovic (University of Maribor, Faculty of Medicine, Center for Medical Education, Slomskov trg 15, Maribor 2000, Slovenia)
Kristijan Jejcic (University Medical Center Maribor, Department of Psychiatry, Maribor, Slovenia)
Eva Nike Cvikl (University of Maribor, Faculty of Medicine, Maribor, Slovenia)
Ivan Krajnc (University of Maribor, Faculty of Medicine, Maribor, Slovenia)

Background: Much attention has been devoted in recent decades to achieve excellence in teaching in medicine. Now, AMEE has launched an incentive to recognise and award excellence of medical schools for three different areas. Stemming from our experiences as an ASPIRE pilot site, we will provide hands-on training in submission preparation for the student engagement area. The workshop intends to provide the unique opportunity to reflect on what would be evidence of excellence in different settings by having diverse international attendance.
Intended outcomes: At the end of the workshop participants will be able to: 1) appreciate global and local context specificity of excellence, 2) implement different ideas on how to further student engagement in their own institutions, 3) understand and critique what convincing evidence is, 4) improve the quality of their ASPIRE submission.
Structure of workshop: Following introduction, we will have a short presentation of ASPIRE incentive. Then the small working groups (SWG) assignments will form the backbone of the workshop. According to the structure of the application form, we will have four cycles of SWG focused brainstorming assignments, followed by group presentations: on Section A, two criteria from the Section C as chosen by participants (the emphasis on supporting claims of excellence with convincing evidence), and on Section E - if time permits.
Who should attend: The workshop is tailored for those who are interested in preparing submissions for ASPIRE certificate for excellence in student engagement at their school. Students are also very welcome to share their views of what is excellence in this area.
Level: Introductory

5X Workshop: Roda Gigante group and State University of Rio de Janeiro: Creative tools to develop professionalism in formation of Health Care providers
Location: Room D, Holiday Inn

Felipe Fortes (Universidade do Estado do Rio de Janeiro, Hospital Universitário Pedro Ernesto, Rua Uruguai, 524/701, Rio de Janeiro 20510-060, Brazil)
Carlos Eduardo Garcia (Roda Gigante, Laboratório Gigante, Rio de Janeiro, Brazil)
Cristiana Brasil (Roda Gigante, Laboratório Gigante, Rio de Janeiro, Brazil)
Daniela Sobrino (Universidade do Estado do Rio de Janeiro, Hospital Universitário Pedro Ernesto/CDA, Rio de Janeiro, Brazil)
Lia da Silveira (Universidade do Estado do Rio de Janeiro, Hospital Universitário Pedro Ernesto, Rio de Janeiro, Brazil)
Flávia Reis (Roda Gigante, Laboratório Gigante, Rio de Janeiro, Brazil)

Background: The teaching of professionalism is a global challenge. Clowns and health professionals exist from the relationship with the other. This relationship is driven by principles such as empathy, look, listen, be available to the other, emotion and creativity. The principles that enable the quality of this relationship can be exercised. We identify correlations between the goals of the learning games of Clown's work at wards and the skills valued in the training of health professionals.
Intended outcomes: Share the creative power of this methodology - learning games of the clown's work - on the training of health professionals; Encourage recognition of creative resources as powerful strategy to amplify principles which are involved in the relationship with the other; Discuss with participants the use of sensitive experience as a resource for teaching and learning in the training of health professionals and finally coloring the boundaries of health and science education with creative art.
Structure of workshop: In this workshop we will share the methodology of training of clowns through sensitive experiences mediated by video, games, reflection from practice, debriefing and systematization.
Who should attend: Students, health professionals and educators.
Level: Introductory

5Z Posters: Clinical Teaching and Communication Skills

Location: South Hall, PCC

5Z/1
Teaching Clinical Skills with Google® Communities

Araya Khaimook (Hatyai Medical Education Centre, Surgery, Hatyai Hospital, 182 Rattakarn Road, Hatyai 90110, Thailand)
Prapa Ratanachai (Hatyai Medical Education Centre, Hatyai, Thailand)
Rajin Arora (Ministry of Public Health, Bangkok, Thailand)

Background: Teaching clinical skills has always been challenging. Many modalities have been used in teaching methods. In non-patient cycle, students are familiar with boxes and models or even high fidelity simulator. We present our experience using the new Google® communities as a tool for helping students learn clinical skills.
Summary of work: The community named "Video for CPIRD Students" was created. The list of essential clinical skills was posted with video demonstration. Students at Hatyai Hospital were assigned to watch video before class. In the class teacher taught clinical skills in usual way. Students were interviewed after class about this method.
Summary of results: Most students showed enthusiasm in this tool. The advantages were that they can focus and prepare the skills beforehand and then used them for reviewing after class and before examination. Nevertheless, there were low responses in comment section. This might be due to awareness that they might be focused later in the class.
Conclusions: This new tool could help students to focus on critical points of clinical skills and help teachers save their teaching times. This tool is ready for recycle and reuse and has potential for development at all time.
Take-home messages: With some preparation, this DIY video bank can facilitate teaching and learning clinical skills.

5Z/2
Comparison of Ophthalmologic Skill Teaching Between Video clip and Teacher's Demonstration

Taweesak Chongwiriyanurak (Lampang Hospital, Ophthalmology, 280 Paholyothin Road, Muang 52000, Thailand)

Background: Learning from video clip is one of the most popular modalities in procedure instruction. The aim of this study was to evaluate learning outcome and satisfaction of medical students who learnt by watching video clip compared with teacher's demonstration.
Summary of work: 20 of 5th year medical students were divided into 2 groups equally. The first group received "Pressure patching" instruction by watching video clip. The second group received the same instruction by teacher's demonstration. The learning outcomes of each group were evaluated with OSCE score and satisfaction and compared by using t-test or fisher's exact test.
Summary of results: General information, such as age, sex and 4 years grade point average (GPA) of both groups were not different. The satisfaction score in teacher's demonstration group was significantly higher than the watching video clip group (95.0 ± 8.2 versus 81.5 ± 14.2, P = 0.018) while the average OSCE score of those two groups were not significantly different (97.6 ± 1.9 versus 96.4 ± 2.0, P = 0.181).
Conclusions: Watching video clip had the same learning outcome as the demonstration by teacher, but the students had more satisfaction in learning by teacher's demonstration than video clip.
Take-home messages: An education isn't how much you know. It's being able to differentiate between what you do know and what you don't.

5Z/3
Managing and developing a clinical skills lab in difficult times

Luis Patrao (Faculty of Health Sciences - University of Beira Interior, LaC - Clinical Skills Lab, Rua Infante D. Henrique, Covilha 6200-506, Portugal)
Ricardo Tjeng (Faculty of Health Sciences - University of Beira Interior, LaC - Clinical Skills Lab, Covilha, Portugal)
Pedro Lito (Faculty of Health Sciences - University of Beira Interior, LaC - Clinical Skills Lab, Covilha, Portugal)
Edmundo Dias (Faculty of Health Sciences - University of Beira Interior, LaC - Clinical Skills Lab, Covilha, Portugal)
Miguel Castelo-Branco (Faculty of Health Sciences - University of Beira Interior, LaC - Clinical Skills Lab, Covilha, Portugal)

Background: During recent years, our Clinical Skills Lab faced the need to adapt to the European financial crisis with budget cutting, along with more and more students entering the medical course.
Summary of work: Further development on medical education was needed, despite those issues, and, having in mind that resources are even more limited nowadays, strategies were created accordingly.
Summary of results: This rather difficult to solve issue became the driving force that was missing; a consistent student-as-teachers program was developed, along with an approach to junior doctors from nearby health institutions and to former students.
Conclusions: Motivation of all the actors involved in this project is the secret to success. Students see their work rewarded in a much more motivating way than grades. Junior doctors have the chance to participate in teaching activities and to get involved in research projects in medical education and other areas.
Take-home messages: Students-as-teachers and junior doctors as teachers additional motivation can have an important role in today's budget limited medical education development process.

5Z/4
A national survey 2012 on clinical skills laboratory for clerkship in Japan

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Background: Since recent changes in medical care security policy have made clinical skills training difficult even in teaching hospitals, trainings utilizing suitable models and simulators are becoming essential to acquire clinical skills for medical students. Based on these, we performed a national survey on clinical skills laboratory for clerkship in Japan.
Summary of work: A registered form questionnaire sheets were sent to all medical schools in Japan (n=80) in December, 2012. The response sheets were filled both by a medical teacher and by a staff responsible for skills laboratory. A 91% response rate (73/80) was obtained.
Summary of results: Sixty-nine schools (94.5%) have already installed clinical skills laboratory, however, there were huge disparities in floor space and availability among schools. Floor space varied from 24 to 2,250 (mean 224 m2). The number of annual facility use by medical students varied from less than a hundred to over ten thousand (mean 1,725) in school year 2011. Sixty-one schools (61%) had resident director in skills laboratory, which significantly promoted facility use (p<0.05). Simulators utilized in most universities (>90%) were simulators for veno-puncture, simulator for lung sounds, mannequins for BLS, simulator for heart sounds, surgical suture trainer, and AED trainer.
Conclusions: These results suggest the possibility that there are considerable differences in simulation-based learning environment during clinical clerkship among schools.
Take-home messages: Although most medical schools in Japan have their own clinical skills laboratory, there seem indispensable differences in size, service and status of utilization.

5Z/5
Developing and moderating an international online veterinary clinical skills group

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Naomi Booth (University of Nottingham, School of Veterinary Medicine and Science, Nottingham, United Kingdom)

Background: Clinical skills laboratories (CSLs) have an increasingly important role in veterinary training. An international online group, 'Veterinary Clinical Skills & Simulation', was established in 2010 within the veterinary professional network NOVICE (Network Of Veterinary ICt in Education) to allow members to share ideas and best practice, and discuss challenges.
Summary of work: The group has a moderator whose role has involved recruiting members, inviting responses from experts, and collating information in the wikis. Group activities have included discussions on 'Assessing clinical skills' and 'How to set up a skills lab', which received over 50 posts with advice regarding the stations to include and where to source materials and models. Blogs have included reports from events and conferences in Europe and North America. Wikis have been used to collate information (e.g. from the group's discussion threads, lists of veterinary schools with CSLs, useful journals and references), and in combination with shared files make a valuable information repository.
Summary of results: The group has grown steadily to nearly 200 members from veterinary schools in over 20 countries. Benefits reported have included having somewhere to ask questions and receiving help quickly in a friendly and supportive community.
Conclusions: The group facilitates international collaboration in a rapidly developing area of veterinary education. Being online negates barriers such as travelling and time differences; asynchronous communication tools allow convenient access to discussions, whilst the information repository is an easily accessible, dynamic resource for group members.
Take-home messages: Online groups provide unique opportunities to collaborate, share best practice and raise educational standards around the world.

5Z/6
Medical Students' and Physicians' Attitudes toward Patients' Consent to Participate in Clinical Training

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Background: The responsibility of the medical training team and practice staff towards a patient referring to an academic medical center has not been fully clarified. Moreover, the attitude towards patients may vary

among different institutions. Thus in this article we have looked at current practice in one of Iran's Medical Universities and tried to elaborate and compare the attitude of medical teachers and students towards patients' consent to be involved in the education of medical students.

Summary of work: In this cross-sectional study, conducted in February-March 2012, we distributed self-administrated questionnaires among all the medical mentors, residents and some students of academic hospitals of Isfahan University of Medical Sciences. This researcher-made questionnaire consisted of some questions about demographic factors, and some concerning several dimensions of informed consent. Data were analyzed using independent t-tests and ANOVA.

Summary of results: Ninety one medical students (51 females) and 61 members of medical training team (25 females) completed the questionnaires that were assigned to them. The overall average attitude score was 36.53 ± 5.89 out of 60, which was classified as fair. The average attitude score for medical students and mentors were not significantly different. Moreover, the average attitude score of female students was 38.33±5.38 which was classified as good, and was different from that of male students, significantly (P-value <0.05). By categorizing medical mentors into those with =5 years of managerial or educational experience and those below 5, a significant difference in average attitude score was also documented (35.8 ± 2.54 in =5 and 34.0 ± 2.9 in >5 group).

Conclusions: According to this study, the attitude of the medical team is far from what is expected. Thus, the need to provide both medical students and medical mentors with data on the importance of obtaining patients' consent to be involved in medical education is highlighted. The medical team should know that informing the patients not only does not interfere with medical education, but also helps improve the patients' behavior towards students, because they may feel pleased by taking part in the education which provides the society with future doctors.

5Z/7
How do patients feel when examined by medical students? A mix of ambiguities and satisfactions found in a Brazilian qualitative study

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Background: In the context of medical teaching, patients are asked to cooperate and submit to medical examination. After technique demonstration from the professor, the students repeat it. How do patients feel in this situation?

Summary of work: To discuss psychological meanings assigned to experiences of hospitalized patients during semiological-clinical we use the Clinical-qualitative study method conducted with an intentional sample of 10 patients from a teaching hospital; using in-depth semi-directed interviews; results interpreted under concepts of Medical Psychology.

Summary of results: (1) Patients have an ambiguous relationship regarding students who sometimes strengthen the doctor-patient relationship with the team, but sometimes deconstruct it. The presence of students is important due to the bond generated, but students often doubt how to conduct certain situations: "What will I do? He would have to talk to me, right?"; (2) Unlike common sense states, there are patients that assume a paternalistic relationship, maybe not so common due to their social status. The presence of the "young doctor" seems relevant: "I felt that the student was in a cold sweat"; (3) The social constructions differences of relations within a teaching hospital compared to other hospitals, since these patients also act as an educational agents. Sometimes they understand such dynamics: "It's good for me, better for them: they are learning!" And at other times they are not: "The hospital is not able to give you a direction in your life."

Conclusions: In order for students to become aware about the emotional background of patients, they will be able to understand that such action may also have a therapeutic effect as well as how early they can influence the well-being of the patients.

5Z/8
The importance of Physicians' skills - from the patient perspective

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Background: Patient satisfaction is of utmost importance in today's health service. Doctors' communication skills are thought to be a vital factor in ensuring this is met. To gain patients' perspectives on this subject, we studied their opinions on their recent consultations and their perceptions of doctors' communication skills.

Summary of work: A questionnaire was distributed to patients at an Outpatients department in March 2013. Scale scoring (1-5), rankings and qualitative feedback was collected and analysed.

Summary of results: Of the 27 patients studied, 62.9% were satisfied with their most recent consultation.

Recurrent positive themes were doctors' manners and provision of advice. Suggestions for improvement focused on not rushing consultations. Some communication skills attained a higher rating of importance than technical skills e.g. clearly explaining information, allowing time to understand and ask questions, and allowing patients to speak about their symptoms.

Conclusions: Communication skills are key in attaining patient satisfaction. Where consultations worked well, this was due to the quality of information provided and the docto's manner. Lack of satisfaction was driven by insufficient time allowed for the consultation, indicating that meetings should not be rushed. Although technical skills were regarded as important, interestingly other communication skills superseded this attribute in terms of importance.

Take-home messages: Whilst demonstrating high standards of clinical competence, doctors should also regard communication skills alike. Further attention must be directed towards any discrepancies between patients' and doctors' perceptions of communication skills.

5Z/9
A comparison of two teaching methods of interpreting chest radiographs by medical students: single-disease patterns vs mixed-disease patterns

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Background: Fourth year medical students are taught to interpret chest radiographs in a block titled Health and Diseases of Adults and Elderly. We aimed to determine a suitable teaching method under limited time conditions.

Summary of work: Two teaching methods of interpreting chest radiographs were used for 227 students: one-by-one single-disease patterns and mixed-disease patterns. The disease patterns were divided into 6 problem lists: pulmonary infiltration, atelectasis, intra-extrapulmonary mass, mediastinal diseases, pleural diseases and hyperlucent lung. Mixed radiographs of these disease patterns were defined as mixed-disease patterns. Immediate post-test and final semester chest radiograph objective structured clinical examination (OSCE) scores were compared.

Summary of results: At a significant difference, the median pre-test scores for the single-disease pattern and mixed-disease pattern groups were 4.0 and 3.5 out of 10, respectively ($p=0.01$), and the post-test scores were 6.4 and 6.9, respectively ($p=0.03$), but no significant difference in the final chest radiograph OSCE scores was observed: 8.0 and 8.3, respectively ($p=0.19$).

Conclusions: The teaching methods did not have an impact in the long term. However, the mixed-disease pattern method can help students interpret chest radiographs in the short term.

Take-home messages: The mixed disease pattern teaching method is probably more effective than the sequential single-disease pattern method in the short term.

5Z/10
Mapping distributed situation awareness in the operating room

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Background: Research regarding surgical decision-making has mainly followed an individualistic approach. However, surgery takes place within a team-based environment. Distributed Situation Awareness (DSA) is used to describe how information is shared and used differently by elements in a system. The purpose of this study was to propose a model of DSA for challenging situations in surgery.

Summary of work: This pilot study included 10 surgical cases. Cases were purposively sampled based on the predicted level of challenge as described by two surgeons. Data included intra-operative observational field notes and post-operative interviews. A preliminary thematic analysis was conducted to identify the types of interactions occurring in the operating room (OR). These themes were used to build diagrammatic representations of those interactions with Propositional Networks (PN) as the modelling tool.

Summary of results: Preliminary results suggest that information flow in the OR is dynamic and is not necessarily dominated by the surgeon. This was evident when analyzing the operations from different perspectives. For example, when PNs were created based on surgical stages the patterns of information flow seemed more distributed than those from PNs based on individual roles.

Conclusions: While further research is required to refine and expand these observations, this study has started to show the utility of a systems approach to exploring situation awareness in surgery. This methodology may prove useful in making explicit the kinds of interactions that take place in the OR.

Take-home messages: PNs may constitute a tool to help trainees in better understanding how their role contributes to the functioning of the system.

5Z/11
UVC Skill Practice in 4th Year Medical Students

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Background: The procedure of umbilical caththerizations (UVC) insertion was need in neonatal resuscitation, intravenous fluid or transparental nutrition. This procedure was assigned to 4th Year medical students, to train them in how to carry this out for themselves. The purpose is to determine how many times the medical student should carry out this procedure until they can be described as experienced; utilizing our UVC skill model.
Summary of work: We have used our UVC skill model in this study. Experienced Paediatric staff carried out this procedure 3 times and the mean duration was calculated for reference. Sixteen 4th Year medical students were then assigned to carry out this UVC insertion procedure using the same recognised method. Their individual UVC insertion times were recorded. Each medical student was then instructed to carry out the procedure as many times as it took to achieve the target of a procedure duration of less than 1.5 times the reference time repeatedly. The mean procedure duration for the 16 medical students was calculated to determine how many times the medical student should carry out this procedure until they can be described as experienced.
Summary of results: Paediatric staff were found to need a mean of 179 seconds for UVC insertion. The target time for the medical students was 1.5 times the reference, therefore 269 seconds. The mean count of UVC insertion attempts was 4.88 for this procedure.
Conclusions: A 4th Year medical student needs 4.88 times to practice UVC insertion until experienced before they can achieve a procedure duration of less than 1.5 times the reference time.
Take-home messages: At least five consecutive practices of UVC model should be carried out prior to applying to real patients. This UVC model should also be included into the curriculum.

5Z/12
Integrating a longitudinal communication curriculum in a new modular competence-based medical curriculum at the Charité Berlin

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Background: Inquiries of medical graduates in Germany and corresponding recent needs assessment analysis demonstrate that communication skills are still perceived among the most deficiently conveyed competencies within undergraduate medical education. At Charité Universitaetsmedizin Berlin, communication competencies are being integrated and evaluated in the new local modular curriculum in a structured and interactive process.
Summary of work: Planning and implementing a communication skills programme in the new modular curriculum is a process affiliated to an eight step standardized module planning procedure at Charité. Based on a collection of educational objectives resulting from Delphi surveys and defined outcomes, communication skills thematically are aligned with the contents of each module in which communication skills courses are scheduled. In a structured iterative multi-step procedure the planned objectives and didactics are being discussed and decided, involving module boards, an interdisciplinary group (including students) planning the communication skills training programme, members of the project management team, the academic board and faculty.
Summary of results: The procedure ensures a viable content which thematically and structurally is oriented towards the presettings of the local modular curriculum and at the same time follows national and international criteria on communication skills objectives. In addition it allows involved stakeholders to react flexibly and on short notice to potentially changing requirements arising for example from review or evaluation results.
Conclusions: Developing and implementing a longitudinal communication curriculum within a undergraduate medical curriculum is a challenge for all parties involved as well it is for the content itself.
Take-home messages: A structured and defined procedure involving stakeholders from all steps of a curriculum planning process is most promising when integrating communication skills programmes.

5Z/13
Integrating Communication Skills Competency into the Medical Education Curriculum at Kazakh National Medical University named after S. Asfendyarov

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(Presenter: Zauresh Issina, Kazakh National Medical University named after S. Asfendyarov, Clinical and Practical Skills Center, 88, Tole Bi street Building 4, Almaty 050012, Kazakhstan)

Background: Communication skills as essential competency for all health professionals were included into new State Medical Education Curriculum in Kazakhstan. The Communication Course has been

developed and adopted within the framework of the KazNMU's Competency-Based Medical Curriculum Model.

Summary of work: The KazNMU's Center for Communication Skills (CCS) named after Juliet Draper established for introduction of the competencies needed for effective clinical encounters and improvement of the physician-patient communication in practice in collaboration with the University of Cambridge, UK.

Summary of results: International collaboration allowed the understanding of the principles of best practice in Communication curriculum emphasis on bioethical competencies, development of the Concept and Strategy for implementation Communication key competencies, development of the Guidelines for Communication Skills Teaching and Assessment based on Calgary-Cambridge Guides (2005), provision of the training courses how to teach communication skills in different learning context and using appropriate teaching methods, organization of the feedback process, development of the OSCE marking sheets, and development of a Capacity Building Plan for Faculty Development in Communication Skills teaching. Also involvement of the medical students into activities of the Personal Development Club "Rainbow" at the CCS encourages them to be self-confident, self-motivated, understand and respect diversity and difference including religion and cultural beliefs.

Conclusions: Communication is a core clinical skill that should be introduced at all three levels of medical education. The CCS in collaboration with KazNMU's Clinical Skills Center, Curriculum Committees, clinical educators, psychologists, psychotherapists, other health professionals and providers promote effective relationship and partnership between physician and patient.

Take-home messages: It is necessary to evaluate the effectiveness and quality of the introduction the Communication Skills Curriculum.

5Z/14

Organization of Early Patient Contact Program during the Communication Skills Course at University Teaching Hospital in UAE

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Background: Successful outcome of any course depends partly on the course content and partly on the organizational aspect. The Early Patient Contact (EPC) program was introduced as an elective in the communication skills course during the first month of medical school. The objective of the present study was to know the perceptions of first year medical students regarding organizational aspects of EPC program.

Summary of work: The study sample included 50 first-year MBBS students of GMU who consented for EPC posting in AY 2010-11 & 2011-12 at GMC Hospital, Ajman. Students' feedback was obtained at the end of EPC posting based on Likert scales (5-1) (SA Strongly Agree; A: Agree; US: Unsure; D: Disagree; SD: Strongly Disagree).The data was analysed using PASW 18.

Summary of results: 74% of students agreed that the program was well organized and same number disagreed that EPC was not relevant to students at this stage and should be introduced later in the curriculum. 76% were satisfied with the 10-hour duration of posting and 64% with evening posting. 88% felt that the demands of EPC program were reasonable; 76% recommended this program to be part of regular curriculum; 90% were satisfied with the quality of the program and opined that the objectives of the program have been met. 94% enjoyed the clinical posting.

Conclusions: Majority of students had positive perceptions regarding organization of EPC program and recommended it to be a part of regular curriculum.

Take-home messages: Good organization is critical element in success of EPC Program especially when organized in first month of medical school.

5Z/15

Learning Through Telephone Consultation

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Background: Telephone consultation is necessary in medical service especially after working hours. This study aimed to explore how medical students learn through telephone consultation.

Summary of work: The learning process during telephone consultation was explored using the self-reported questionnaire among recently graduated medical students. A pilot study was done to test the validity and reliability of the questionnaires.

Summary of results: Forty six students were firstly recruited. Nine of them were excluded because of delayed graduation and felt uncomfortable to complete questionnaire. Finally, all data based on 24 responders were analyzed. The average number of telephone consultation made by medical students was 70 times/year; most of these occurred at the emergency room. Seventy percent of the students reflected that they gained knowledge in disease managements during telephone consultation. The consultants should tell them about diseases, clinical manifestations, plan of management and also re-examination. However, they pointed that they had difficulties to describe some clinical manifestations while consultation. The efficiency of consultation could be increased with new applications such as whatsapp, line and facetime.

Conclusions: Telephone consultation could provide clinical manifestation and plan of management to medical students.

Take-home messages: Using higher technology applications such as whatsapp, line and facetime could improve the telephone consultations.

5Z/16

Student perceptions of mobile learning for clinical skills training

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Background: The consortium of Korean medical schools for e-learning has offered over 300 streaming videos on basic clinical skills, which are also accessible on mobile devices. The present study reports a study of the student experience of mobile learning in preparing for OSCE (Objective Structured Clinical Examination).
Summary of work: A 30-items questionnaire was administered to students in 34 Korean medical schools registered in the e-learning portal. The students' frequency of access and their perceived effectiveness of the OSCE videos were compared between those who used mobiles devices and those who used computers to access the videos.
Summary of results: 114 students returned the questionnaires, 34% of whom used mobile devices to access the videos. 37% of the total hits on the video clips were also from mobile devices; both mobile and computer users perceived positively on the effectiveness of the OSCE videos (p = .43). The number of OSCE videos viewed was also comparable between the groups (p = .80). Mobile users agreed more with the statement that the access to the videos was convenient (p < .05) and they accessed the videos at home more frequently (p < .05) than their peers; yet, several students pointed out the lower connection speed in mobile devices.
Conclusions: Mobile users felt more positively about the convenience of accessing streaming videos. Optimizing streaming videos for mobile devices is suggested to minimize problems in connection speed.
Take-home messages: Students perceived positively of the convenient access to OSCE videos in the mobile learning environment.

5Z/17

Improving Theatre Experiences and Learning for Medical Students in Surgery

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Background: Little research has looked at improving learning from theatres. This study was undertaken to look at ways to enhance medical students' experience and learning in theatres. This was to be achieved by focusing them on the patient journey from admission for elective procedures through to post-operative management of patients.
Summary of work: 32 Warwick Medical School 3rd year students on surgical placement at University Hospital Coventry and Warwickshire (UHCW) were asked to complete a voluntary, anonymous questionnaire. This was completed prior to and following a lecture on approaches to maximise use of theatres. Questions related to subjective views on learning and preparation for theatre. These scores were then tallied and an unpaired t-test was used to analyse the data. There were 2 further questions relating to whether the changes improved their experience of theatres.
Summary of results: Students experiences improved with the changes. Students reported that the changes improved their learning. They found that this approach showed a statistically significant improvement in enjoyment and how useful theatre was to their learning. They were also prepared better for upcoming cases.
Conclusions: By focusing students on seeing patients prior to and post-operatively and by preparing for theatre, their self-reported experience of theatres improves. They also reported that their learning improved and they took more from theatres with changes.
Take-home messages: Following the patient journey leads to a better learning experience and increased enjoyment and learning from theatres and surgical patients.

5AA Posters: Career Choice
Location: Terrace 2, PCC

5AA/1
How medical students' career choices differ according to their personality types

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Background: This study examined three overarching topics: 1) What are medical students' preferences with regard to career choices according to their MBTI (Myer-Briggs Type Indicator)? 2) Is there any difference in career choice between MBTI type? and 3) Do the MBTI types in this study coincide with the MBTI types that are related to medical careers?
Summary of work: MBTI types were determined for 237 students of 2 medical colleges in the first semester of 2009, 2011, and 2012. Their planned careers, which were categorized as physician, surgeon, and others, were also recorded. Frequency analysis and chi square test were performed.
Summary of results: 1) Among those who chose physician, ISTJ was the dominant type (20.3%), followed by ESTJ—the opposite pattern developed among those who chose surgery. 2) There were no significant differences between planned careers according to preference type. But, 'introverted' types preferred to choose internal medicine (53.6%), and 'extroverted' types wished to become surgeons (54.4%). 3) Generally, 2 dominant types were observed in doctors, and a preference type was also noted (ISTJ 17.7%, ESTJ 16.0%, Sensing-Thinking type 46.4%).
Conclusions: Choosing specific fields is influenced by the characteristics of extroverted and introverted types, for whom a tailored instructional method or career mentoring program needs to be considered.
Take-home messages: Students' personality types affect their career choices and should be taken into account with regard to career mentoring and instructional method.

5AA/2
What is behind students' choice for becoming a doctor? An analysis of 10,640 descriptions written by 1st-year medical students in a newly developed exercise

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Background: Medical students' perceptions of becoming a doctor were analyzed qualitatively as well as quantitatively.
Summary of work: To promote medical students' awareness of becoming a doctor, we have introduced a new exercise in 2010 to the 1st-year curriculum in which each student was given the task of writing "30 reasons of learning medicine" down on a work sheet. Students read the descriptions one another in a group of six peers and discussed the reasons and purposes of becoming a doctor. Natural language processing technology (NLPT) was used to analyze the students' descriptions.
Summary of results: A total of 375 1st-year students participated in this exercise during 2010, 2011 and 2012. Of the 375 students, 367 agreed with utilization of their descriptions in this study. The 367 students had written a total of 10,642 reasons of learning medicine, which were analyzed by NLP software. The five most frequently used nouns in students' descriptions excluding Doctor, Medicine or I were, #1. People (1,985 times), #2. Patients (617 times), #3. Diseases (503 times), #4. Job/Work (471 times) and #5. Interest/Curiosity (296 times). When the texts were analyzed contextually, the five most frequently appeared phrases were #1. People and Help/Save/Secure (230 times), #2. Living/Income and Stable/Good (142 times), #3. People and Many (134 times), #4. People and Encounter/Relate (133 times), and #5. People and Suffering/Difficulty (103 times). Most of the students evaluated this program affirmatively in the post-exercise questionnaire.
Conclusions: 1st-year medical students most commonly perceive "Becoming a doctor" in the context of relationship with people. Stable life and income may be behind their choice for this profession.
Take-home messages: The NLPT allowed analysis of a vast amount of document information in both quantitative and qualitative ways. Our new program worked effectively to facilitate medical students' awareness of being a doctor.

5AA/3
An investigation of the relationship between laparoscopic box trainer score and interest in surgery as a future career

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Background: Medical students are often uncertain of their general career choice of either medicine or surgery. Moreover, students have little idea of whether they hold the skills necessary to enter a surgical career before hands-on exposure. This study explores whether a relationship exists between performance on a laparoscopic box trainer, which reflects visuospatial and dexterity skills, as a pre-clinical medical student and a student's prior interest in a surgical career.

Summary of work: 1st and 2nd Year medical students at Durham University will be quantitatively assessed during a timed exercise on the laparoscopic box trainer. Students will also fill in a questionnaire before and after the exercise, aimed at gauging their interest in a surgical career.

Summary of results: Data has been collected and in the process of being analyzed. Results will show whether medical students with an interest in a surgical career demonstrate signs of visuospatial or dexterity skills. Moreover, they will show whether the box trainer exercise changes student views on future career choices.

Conclusions: Demonstration of visuospatial and dexterity skill as measured by performance on a laparoscopic box trainer may or may not serve as a predictor of a medical students' propensity to choose a career in surgery over medicine.

Take-home messages: Junior doctors often find themselves having to make a major career choice between medicine and surgery despite uncertainty over their interest and competence in each respective field. A surgically-related predictor of early interest in a career in surgery could therefore be beneficial in helping such decisions.

5AA/4

The Hidden Curriculum of Career Choice: its nature and influence on who chooses a surgical career

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Background: We hypothesise that students become socialised into the culture of different specialties whilst at medical school, suggesting specialty-specific hidden curricula exist. We aimed to establish, through examining the specialty of surgery, whether a specialty-specific curriculum exists, and the mechanism by which students encounter and negotiate career options in medicine.

Summary of work: Data were collected from medical students in Years 1-5 using a questionnaire and twelve in-depth semi-structured interviews. The research was conducted in accordance with constructivist grounded theory methodology and emergent memos captured during analysis were used to construct a theoretical model.

Summary of results: Students accumulated information regarding the hidden curriculum via relationships and network building. Students enacted the hidden curriculum of surgery in two ways; accumulating practical achievements, and displaying personal characteristics expected from surgeons. This allowed them to identify themselves, and be identified by others, as future surgeons. Students were thus able to fit in and gain access to participation in theatre; a way to further expand their network and acquire more careers information. Whilst research shows role models are important, our findings suggest a more complex web of interrelationships best facilitate the flow of careers information and access to the hidden curriculum.

Conclusions: Relationships and network building allow students to gather surgical careers information, enabling them to adopt the persona of a future surgeon and accumulate relevant achievements allowing participation and success in surgery.

Take-home messages: Surgery has a distinct hidden curriculum associated with becoming successful, which students uncover via relationships and network building, and subsequently embody to gain participation in the surgical world.

5AA/5

Tracking our graduates: where are they going and why?

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Background: Medical schools need to understand the factors affecting the career choices of its graduates so as to improve the quality of career advice and support given to students for such life-determining choices (Watmough, 2009). This is especially relevant for medical schools in rural and other under-served areas (such as Wales) dealing with problems with retaining and recruiting doctors (Bärnighausen & Bloom, 2009; Henry, Edwards, & Crotty, 2009; Stagg, Greenhill, & Worley, 2009; Tolhurst et al., 2008).

Summary of work: A mixed-methods exploratory study using an online survey and 16 follow-up semi-structured, audio-recorded telephone interviews with graduates from the 2010 and 2012 cohorts of a graduate entry

programme. Thematic analysis of data was conducted using QSRNvivo10 software.

Summary of results: Response rate to the online survey was approximately 33% for both cohorts (24/73 and 22/65 respectively). The main themes identified were consistent across cohorts and across different training locations.

Conclusions: Themes identified reveal a strategic approach to selection of postgraduate training location based on a combination of multiple factors. Attaining a balance between career aspirations, perceived training/job opportunities and personal factors/circumstances is a key determinant for career decision-making.

Take-home messages: Personal relationships and circumstances such as family proximity and connections to a region are very influential for early career decision-making, especially in Graduate Entry Medical programmes. Early engagement of students via social media, alumni web pages and other networks, allied to good collaboration across institutions is fundamental for the success of tracking projects.

5AA/6
Impact of the psychiatric internship on seventh-year medical students with regard to attitudes to mental illness and psychiatry and the impact on development of clinical skills

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Background: There is increasing evidence of the importance of mental health in medical education, not only because of the prevalence of psychiatric illness among the population, and their impact on the quality of life, but also because mental health training increases psychosocial competencies and improves the quality of medical performance

Summary of work: Objective: To assess the impact of the psychiatric internship on seventh-year medical students with regard to attitudes to mental illness and psychiatry and the impact on clinical skills. Method: A questionnaire with 32 items regarding attitudes toward psychiatry and a written test with nine MCQ about clinical situations were applied at the beginning and the end of the internship.

Summary of results: One hundred and ten seventh-year students participated in the study, providing responses anonymously. A low level of negative prejudice against psychiatry was found at the beginning of the internship, and no significant differences were observed in comparison to mean scores at the end of it. The analysis by item showed significant differences in five items, with significant differences and improvement in negative prejudice in four. There was a significant difference in

the percentage of correct answers of the written test between the applications at the beginning and the end.

Conclusions: Undergraduate students of a Chilean medical school showed more favorable attitudes toward psychiatry and low levels of negative prejudice, which were not significantly modified by the internship, in contrast to the improvement in clinical skills.

Take-home messages: These findings suggest and could determine a greater disposition to develop psychosocial competencies and to choose psychiatry as specialty.

5AA/7
Personal Values, Vocational Motivations, And Career Perceptions Of Medical Students Of A New, Private University In Santiago, Chile

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Background: Insight into medical students' particular values and vocational interests can help schools modulate their educational practices.

Summary of work: We evaluated the nature of vocational preferences, career perceptions and values of 260 medical students, from first to seventh year, of a Chilean university by means of a specially devised survey.

Summary of results: Younger students, and females in general, regarded medicine as primarily socially-oriented, while interns and males, were largely inclined to consider it a predominantly scientific-technologic discipline. The notions "studying medicine reflects a personal moral/ethical choice", and "altruism is a key component of a physician work" were more favored by younger students, irrespective of their gender, than were by interns. The latter agreed more with: "medical students lose their ideals as career evolves". A majority of responders expressed interest in pursuing a postgraduate specialty; working in the public sector, and in high-complexity, tertiary care hospitals, despite their predominant perception that there is a country-wide shortage of generalists and primary-care physicians. Students' degree of interest for a future career in primary care or general medicine decreased steadily from 1st to 7th year. A majority of responders declared that Medicine had been their preferred vocational choice but that a private "nontraditional" university had not been their number one option. Interestingly, a sizeable proportion of students had entered medical school motivated by a future career in Sports Medicine.

Conclusions: This study constitutes the first characterization of our students´ profiles.
Take-home messages: Defining their students´ values, preferences and vocational motivations should help medical schools redefine their institutional practices and graduates´ profile.

5AA/8
Influences on Career Choice: What factors influence the career choice of medical students?

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Stephen Rimac (CaRMS, Ottawa, Canada)

Background: The purpose of this study is to uncover what factors influenced graduate's career choice in family medicine, surgery, and internal medicine.
Summary of work: This longitudinal study aggregates data from CaRMS' Post-Match Survey of Canadian Medical Graduates. The goal of the survey is to address issues concerning medical graduates.
Summary of results: From 2003 – 2013, interest in family medicine increased (8.9% increase) while interest in surgery decreased (3.9% decrease), and little change was found in interest for internal medicine (0.2% decrease). Differences in factors that influence career decisions have also been found between specialties.
Conclusions: Graduate discipline choice is an important determinant of the distribution of specialties and associated training locations across the country.
Take-home messages: Understanding the characteristics associated with career choice can assist residency institutions in determining the characteristics, motivations, and needs of residency applicants.

5AA/9
Who wishes to work in Family Medicine?

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Background: Although a large number of the students will have to work in primary health care, Family Medicine does not seem to be an attractive area. Students generally believe that primary health care is not a prosperous field for personal development.
Summary of work: Aim of the study: to analyse students' perception of reasons which make a specialty more prestigious. Participants were first and 6th (final) year students of Zagreb School of Medicine (N=462) in the academic year 2012/13. Since, this study was a part of a larger study a pre-validated anonymous questionnaire was administered containing also one open question on their reasons for difference in specialty prestige. Qualitative analysis of obtained data was performed.

Summary of results: Reflecting the reasons for certain specialty's prestige most often were mentioned factors such as labour characteristics (hospital environment, vital decision making, stressful, responsible, often manual and invasive work, at the edge of life and death, which demands sacrifice, long working hours, night shifts, broad knowledge and sophisticated technology), treatment/therapy results (rapid, evident improvement or life rescue), specialisation characteristics (duration, severity, difficulty to obtain, subspecialisation needed) and dealt with illness characteristics (type, acuteness, vital vulnerability, complexity, drug/therapy dependency and importance of the body part). Other factors included political and pharmaceutical industry influence, health system organisation, health care accessibility, society needs, income, media, fashion, possibility for private praxis, and stereotypes. However some students indicated there was no difference in various specialties' prestige.
Take-home messages: differences in prestige influence medical student choice of their future specialisation and it should be taken into consideration when planning medical career development.

5AA/10
Factors associated with preference for primary care specialties in undergraduate medical students: a national cross-sectional study in Portugal

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Manuel João Costa (University of Minho, Life and Health Sciences Research Institute (ICVS), Braga, Portugal)

Background: In Portugal, medical graduates tend not to prefer careers in primary care. In the last decade, undergraduate medical curricula have put more emphasis on primary care.
Summary of work: This was a cross-sectional study on the specialty preference of undergraduate students attending medical schools in Portugal. A sample of 924 students of every year in all medical schools (8,89% of the population) replied to an online questionnaire that collected the following variables: sociodemography, year of study in medical school, current specialty of preference, motivations and perceptions about specialties and the practice of medicine. Multiple logistic regression was used with specialty categories - medical, surgical and primary care - as dependent variables.
Summary of results: Few students preferred primary care specialties (n=58; 6,3%). Preference for primary care was associated with attending the clinical years (OR = 2.7, OR = 2.5), intend to practice medicine in non-urban areas (OR = 2.7, OR = 3.3) and to pursue primary care regardless of the location (OR = 5.4, OR = 4.1) , compared with surgical and medical specialties respectively. However, the regression model accounted for 21.9% of the preferences, suggesting that other

factors should be considered to understand specialty preference.

Conclusions: Undergraduate students in Portugal demonstrate little preference for primary care specialties and the main factors associated with that preference were: attending the clinical years of the degree, intention to work in non-urban areas and preference for primary care, regardless of geographic location.

Take-home messages: Despite the changes in Portuguese undergraduate medical curricula, students continue not to favor primary care specialties.

5AA/11
Studying and graduating with a disability in a health sciences education program

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Background: As part of a more global study about "graduating with a disability" at Ghent University, special attention was paid to students in medicine and other health sciences.

Summary of work: Graduates from various health sciences education programs functioning successfully as professionals with a disability were sought and interviewed. Students considering themselves as having a disability were invited to participate in a written survey and an oral interview. Afterwards the results of those interviews were discussed with the education committee chairpersons of the different health sciences education programs.

Summary of results: Sixteen students were interviewed, with disabilities ranging from ADHD, ASD, hearing or vision disorders, diabetes, cancer, CVS to bipolar disorders. For many students their disability motivated them to choose for a career in health care or health science. Despite reasonable adjustments, students with psychological disturbances experienced the most difficulties to overcome the challenges of their curriculum.

Conclusions: Although the researchers of this study concluded that program managers should give information but no advice to candidates for health sciences education programs, education committee chairs considered themselves entitled, even obliged to advise students with disabilities negatively when they considered them unfit to complete the educational program or function successfully in a health professions' environment.

Take-home messages: Although the researchers of this study concluded that program managers should give

information but no advice to candidates for health sciences education programs, education committee chairs considered themselves entitled, even obliged to advise students with disabilities negatively when they considered them unfit to complete the educational program or function successfully in a health professions' environment. Conflicts seem irresolvable between students' remaining abilities and perceived limitations in a (often stressful) professional health care or research environment.

5AA/12
Change in career choice and motivation over time at medical school

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Andrew Singleton (St George's Medical School, London, United Kingdom)

Background: A number of factors are known to influence the career choices of medical students including both intrinsic factors such gender, parental occupation and personality attributes and extrinsic influences relating to individual medical schools such as educational system curriculum and size of programme and also career factors such as pay and prestige. Little has been studied about how the career preferences of medical students changes over their studentship.

Summary of work: Medical students in their 1st year, each clinical year and a group of doctors, who had qualified 2 years prior, from the same institution, were invited to take part in an on-line survey. Data gathered included demographics, career choice and motivators for these preferences.

Summary of results: 449 people participated with a response rate was 27.2 % (qualified doctors) to 45.7% (students in 2nd clinical year). The most popular "first choice" careers in 1st years were Surgery (25.6%) and Paediatrics (21.2%) changing to General Practice (12.7-19.1%) and Medicine (20.4-27%) in clinical years. Anaesthetics only became popular in the final year (14.5%). General practice was favoured by 30.8% of qualified doctors. When examining motivators for this preference, the most popular factors were consistently "job satisfaction" and "intellectual stimulation" with "flexible hours" and "salary" deemed important/ very important for 50-60% of respondents. "Shorter time in training" became marginally more important and "social status" less important over time.

Conclusions: Career preference and its motivating factors, changes over time in training.

Take-home messages: Career preference and motivation of choice are dynamic, and both are subject to change throughout undergraduate and postgraduate training.

5AA/13
How do students, foundation doctors and specialty trainees perceive a career in O&G? Mixed methods analysis of a national survey

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Background: A survey into attitudes of students and junior doctors towards a career in Obstetrics and Gynaecology (O&G) was carried out by the RCOG in 20051. Since then, UK training has changed considerably. This survey sought to answer how O&G as a career is perceived by current medical students, Foundation doctors and O&G Specialty Trainees (Years1-3).
Summary of work: An anonymous, piloted survey was distributed electronically to the three groups nationally during May 2012. Free-text responses were analysed thematically.
Summary of results: There were 2073 responses: 1114 medical students, 666 Foundation doctors and 293 ST1-3 trainees. 38.4% of students and 30.1% of Foundation doctors were likely to consider O&G as a career. Overall, the most positive features of a career in O&G related to interest in the specialty itself. The most negative features were litigation and work-life balance. These results were comparable with the previous survey. Following analysis by career intentions the negative factors varied. The greatest negative factor for medical students and Foundation doctors not considering O&G was bad undergraduate experience. Foundation doctors considering O&G highlighted getting a training post as a negative factor. Qualitative analysis of open-ended free-text responses provided richer assessment of the impact of undergraduate and foundation posts on career choices.
Conclusions: Despite improvements in recruitment since 2005, work-life balance and litigation continue to be perceived as negative features of the career; bad undergraduate experience is linked with those who decide against a career in O&G.
Take-home messages: Successful specialty recruitment depends on good student experiences and accurate career perceptions.

5BB Posters: Postgraduate Education 1
Location: South Hall, PCC

5BB/1
The Use of Smartphone/Tablet Technologies by Training Doctors in Clinical Settings

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Background: Training doctors are using mobile technologies in clinical settings but there is still little research in this area. A master's research project was undertaken focusing on how training doctors experience these technologies both as learner and doctor.
Summary of work: An initial survey was undertaken and then interviews were carried out. Transcripts, field notes and memos were all used as part of the grounded theory methodology used.
Summary of results: Doctors are using their smartphones/tablets for learning and teaching, through the use of apps and the internet. On-the-move checking of emails, texting and phoning was universal. They are alert to negative attitudes regarding use but more often it is that they are concerned there might be negativity rather than that they have experienced it. Training doctors take their cue from consultants - if seniors are keen and advocate use, they will use them visibly; if seniors do not use and/or advocate them, trainees use their devices away from those seniors.
Conclusions: Doctors are negotiating their use of these technologies in a context of complex professional and doctor/patient relationships and are alert to ways in which their usage might compromise those relationships. However, they see huge potential in the devices in terms of gaining in medical confidence and competence, in providing patients with information and support, in improving systems and processes and in communicating more effectively and speedily.
Take-home messages: Their approach was enthusiastic but cautious. It is clear that in their use of these smart devices training doctors are exercising appropriate professional judgement regarding specific and individual contexts and circumstances.

5BB/2
PodMedPlus: an innovative educational intervention for junior doctors in the era of the European Working Time Directive

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Background: Changes to postgraduate medical training, including introduction of the European Working Time Directive (EWTD), have impacted the ability to deliver postgraduate medical education. We describe an innovative project, PodMedPlus, designed to optimise access to medical education by junior doctors.
Summary of work: An educational programme comprising of audio/video podcasts has been piloted. The podcasts comprise of case-based discussions between a junior and senior clinician. The topics covered are relevant to postgraduate medicine and accessible as web downloads at any time. Qualitative and quantitative pilot data based on two trial podcasts, and participant feedback, have been obtained.
Summary of results: Our pilot involved twenty-eight junior doctors from one teaching hospital. We issued knowledge-based questionnaires immediately before and after watching a podcast covering a specific topic. For one trial (topic: bronchiolitis), the mean percentage of correct answers to the questionnaire before the podcast being played was 69%, rising to 92% following the podcast; for the other trial (topic: stroke), a less marked rise from 86% to 92% was observed. Interestingly, more individuals (74%) felt the bronchiolitis podcast was educationally informative than the stroke podcast (25%). Feedback on the podcasts was generally positive, with most feeling the podcasts met the learning outcomes described at the beginning of the podcast (69%).
Conclusions: We have demonstrated the ability to improve clinical knowledge through podcasts. Our participants have suggested areas for improvement, and wider implementation of PodMedPlus is subsequently planned.
Take-home messages: Podcasts can help deliver an accessible education, with quantifiable knowledge gains, to junior doctors in the EWTD era.

5BB/3
What do junior doctors think about e-learning and podcasts in postgraduate medical education? Results of a survey

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Matthew A Kirkman (Imperial College London, Faculty of Medicine, London, United Kingdom)

Background: Restrictions on working hours of junior doctors in Europe presents a significant challenge in delivering postgraduate medical education. We sought to ascertain the opinions of junior doctors on e-learning, and podcasts in particular, as an instructional medium to overcome barriers to accessing learning.

Summary of work: We designed and distributed a detailed questionnaire about e-learning and podcasts to junior doctors in one teaching hospital.

Summary of results: Twenty-seven junior doctors completed our survey (96% response rate). 37% studied medicine as a postgraduate, and the majority (78%) attended a problem-based learning curriculum medical school. Most agreed that e-learning is a useful method of learning in medicine (78%), felt confident in using e-learning (74%), and felt e-learning is essential for doctors (59%). However, only 30% preferred e-learning over traditional methods of learning, and 48% found it more engaging than traditional methods. Despite this, 93% felt podcasts have the potential to be useful and 70% would consider using podcasts as part of their training, with 52% having used them before for education. Discussion: Our survey highlights an overall positive opinion about the role of e-learning and podcasts in postgraduate medical education. However, our survey suggests that their role may be best as an adjunct as opposed to replacement for more traditional instructional methods.

Conclusions: E-learning and podcasts are generally well regarded as educational tools in postgraduate medicine

Take-home messages: Wider implementation of e-learning, and podcasts in particular, as formal adjuncts in postgraduate medical education should be considered.

5BB/4
Using qualitative research and patient safety to review revise and reinvent the regional Foundation Doctor Induction training programme; an exploration of lessons learnt

Sonia Joseph (NHS Lothian, Directorate of Medical Education, Edinburgh, United Kingdom)

Background: Regionally the FY1 shadowing experience was inconsistently delivered across hospital sites with no evidence of adaptation to the needs of doctors, patients with no ability to share good practice. The programme aim was to identify and meet the needs of the FY1 doctors whilst balancing the needs of patients and the corporation.

Summary of work: Utilising qualitative research methods we conducted a series of surveys and focus groups on the current foundation year group. Institutional requirements were mapped against the GMC domains for good medical practice and the Scottish Patient Safety Programmes primary targets. The programme involved interactive lectures, workshops, simulation training and an interactive module. All sections met the pre-determined learning outcomes, reinforcing practical systems knowledge. Triangulated qualitative feedback was gained and patient outcomes measured in key areas ie. medicines reconciliation and insulin prescribing.

Summary of results: Thematic analysis with key points of learning outcomes for the corporation demonstrated improved perception and preparedness for working life

and early data to suggest reduced clinical incidents and patient harm.

Conclusions: The implementation and review process of our programme has exposed a series of institutional assumptions about trainee prior knowledge but has permitted multi-professional silos to work together and co-ordinate with teaching programmes regionally.

Take-home messages: By arming doctors with greater systems knowledge linked into patient care objectives we can engage and empower our trainees and allow early identification and support of doctors in difficulty.

5BB/5
European Postgraduate Medical Education Study

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Background: Medical Education is the center of providing healthcare for the society's evolving increased healthcare needs in an aging population. In the last 20 years two major reforms of medical education have been undertaken in the UK, including that on specialist medical training by Sir Kenneth Calman in 1993 and the MMC Modernising Medical Careers in 2005, which led to reform of the SHO grade. The Senior House officer grade consisted of jobs of short term intervals sometimes combined with unstructured training. The Foundation Programme was established in 2005 .This is a two-year generic training programme to form a bridge between medical school and specialist training. It is considered to be necessary for the development of generic skills required for all doctors and to help them to make a more informed career decision based on exposure to a broad range of specialities. The F2 training grade is being exposed to placements consisting of a minimum of four to a maximum of six months in various specialities and an increased emphasis on General Practice, as 50% of doctors in training will need to become GPs in order to fulfil the UK health economy needs. In comparison in Germany the medical graduates enter directly the speciality training.

Summary of work: EPMES is a survey of 40 UK specialists and their perception of the benefit of the current F2 training programme for their speciality. This is compared to 40 German specialists regarding their perception of introducing a F2 programme in order to improve their informed career decision.

Summary of results: awaiting summary of results.

Conclusions: On-going study - soon finishing - await feedback from questionnaires.

Take-home messages: EPMES awaits evaluation for take home message.

5BB/6
Confidence in ACLS performance among newly graduated doctors

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Background: In Thailand, newly graduated doctors work as certified practitioners once they graduate from medical schools. Most, if not all, are appointed to run emergency rooms throughout the country. Inevitably, there are patients suffering from bradycardia, tachycardia and cardiac arrest, which require Advanced Cardiovascular Life Support (ACLS). Confidence in their ACLS performance among these fresh graduates is thus important.

Summary of work: At the end of the final academic year, 117 newly graduated doctors were asked questions concerning their ACLS confidence. A questionnaire was used, with a Likert scale of 1-5, where 1 means "very unconfident" and 5 means "very confident." Aspects of confidence include the respondent's knowledge, her confidence as a team leader and team member, confidence in teaching, the number of cases a respondent participates in, and reasons supporting her confidence.

Summary of results: In one year, the number of cases a respondent participates in is limited, with 11 cases on average (the range varies between 2 and 30). Confidence in BLS is higher than those in ACLS. While the respondents seem confident with their role as a team member (4 out of 5), confidence decreases for knowledge, team leader role, and teaching (3.72, 3.55, and 3.44 respectively). 70 percent of respondents agree that the number of cases participated in contributes positively to their level of confidence. On the other hand, almost 40 percent believe ACLS education and examples are key contributors.

Conclusions: The average level of confidence in ACLS among newly graduated doctors is medium to high.

Take-home messages: Measures to increase the level of confidence in ACLS should be emphasized before graduation.

5BB/7
The work of recently graduated physicians in Emergency Room

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Background: Emergency Room (ER) overcrowding, due to a variety of factors associated to the fact that the physician in charge may be, many times, an inexperienced recently graduated person, has transformed the area into one of the most problematic in the Brazilian health system.

Summary of work: Research was conducted with a group of students of the class of 2011 of a private institution, after approval of local Ethics Committee. A structured questionnaire was used; graduates were asked whether they were attending medical residence (MR) and whether they are working in ER, independently of MR.

Summary of results: Out of 101 former students, 50 answered the questionnaire. Out of these, 31 (62.0%) were attending MR and 19 (38.0%) were not. Twenty in the first group (64.5%) and 12 (63.1%) in the second group have been working with in ER.

Conclusions: Medical School is expensive and lengthy. The recently graduated person finds open doors in emergency services and ends up entering this kind of work early. This activity, when combined with MR, can hinder learning. ER job has proven to be a relevant option for the recent medical graduates in Brazil, regardless of the MR.

Take-home messages: The research reinforces the importance of the teaching/learning of emergencies during graduate years. The activity of resident physicians in extracurricular shifts needs to be better assessed. Presumably this overload of work provides decreased quality of life and can compromise the learning and performance in this important moment of their medical training.

5BB/8
Are we preparing our medical students and Foundation Trainees for managing acute urological emergencies?

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Roderick McDermid (Royal Hallamshire Hospital, Urology, Sheffield, United Kingdom)
Suresh Venugopal (Royal Hallamshire Hospital, Urology, Sheffield, United Kingdom)
Mangera Altaf (Royal Hallamshire Hospital, Urology, Sheffield, United Kingdom)
Rosario Derek (University of Sheffield, Academic Urology Unit, Sheffield, United Kingdom)

Background: Urological emergencies account for 20% of all acute surgical admissions. As the first port-of-call, Foundation Year 1 (FY1) doctors are expected to assess and initiate treatment for these patients. This study was conducted to assess final year medical student's and FY1's knowledge on 6 common urological scenarios that they will encounter.

Summary of work: A questionnaire-based best response assessment tool was used. 83 final-year medical students from a single university who had completed a two-week urology placement and 67 FY1 doctors from a single deanery participated.

Summary of results: 92% and 97% of medical students and FY1s respectively were unsure of management of chronic urinary retention. Over a quarter in either group

were unsure with regards to evaluation of haematuria. With regards to PSA testing, over 56% in both groups held the false belief that a period of at least 7 days is required to perform this test following a digital rectal examination.   25% of medical students were unsure or believed that the insertion of a urinary catheter in a patient with prostate cancer required specialist urological expertise. In the non-acute scenarios, over 25% in both groups believed that vasectomy reduced potency.

Conclusions: There are significant gaps in core urological knowledge in medical students and FY1's which needs to be addressed at an undergraduate level.

Take-home messages: Exposure to urology in medical school needs to be scenario dictated as medical students will encounter a high frequency of urological cases throughout their post-graduate careers.

5BB/9
Ophthalmology Teaching for Foundation Trainees

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Background: Foundation Year 2 (FY2) doctors in a central teaching hospital undergo compulsory placements in Accident and Emergency and General Practice where they are expected to deliver emergency eye care. They need to demonstrate "targeted examination skills and appropriate use of equipment, including an ophthalmoscope" (The UK Foundation Programme Office- UKFPO). However, undergraduate ophthalmology training is limited and variable.

Summary of work: We aim to assess the baseline knowledge and practical skills of our Foundation Year 2 doctors. We also aim to measure the educational effect of an ophthalmology teaching session on improving baseline competencies. We introduced a structured ophthalmology teaching session consisting of didactic presentation and practical teaching on ophthalmoscopy and slit lamp examination with real patients. Pre- and post-course questionnaires assessed self-rated confidence of the FY2 doctors in recognition and management of ophthalmic emergencies. Baseline experience and confidence in using basic ophthalmological equipment were also evaluated.

Summary of results: The average length of undergraduate ophthalmology exposure amongst our doctors is 4 days. FY2 doctors felt more confident in diagnosing and managing ophthalmic emergencies after the course (p < 0.001). All trainees had experience with direct ophthalmoscopy but 80% felt more confident in using an ophthalmoscope after the course. 40% of trainees have no experience with slit lamp

biomicroscopy. Post-course, all trainees gained confidence in slit lamp examination.

Conclusions: We recommend ophthalmic training at post-graduate level to equip foundation trainees for core placements and achieve competencies outlined by UKFPO.

Take-home messages: Junior doctors benefit from a dedicated practical ophthalmology teaching session to be more confident emergency eye care providers.

5BB/10
Postgraduate Medical Education Program Improvement: Moving from Unstructured (Experiential) to Structured

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Background: The Royal College of Physicians & Surgeons of Canada has developed a structured process to ensure that graduates of Canadian postgraduate medical education (PGME) programs have acquired the skills and competencies necessary to be good clinical practitioners able to meet societal needs.   Oversight of the educational programs is through a structured accreditation process. This process has received international attention.

Summary of work: The Royal College has completed 37 PGME program consultations in 4 countries over the past 3 years. Ensuring processes that adequately prepare graduates for clinical practice responsive to societal needs was an overarching goal of the programs. Using the Royal College accreditation process as a framework, programs were able to identify opportunities for improvement.

Summary of results: Following consultation, programs identified specific quality improvement and program development opportunities such as, formalizing the training program committee, introducing official faculty evaluation and resident assessment procedures, increasing resident involvement on program committees, and creating blueprints for teaching and assessing physician competencies.

Conclusions: Program consultation using an established framework enables programs to develop better structures that increase involvement of faculty and residents. Programs that underwent a consultation also shared "lessons learned" with colleague programs resulting in knowledge diffusion and application locally.

Take-home messages: External consultation can assist programs in the development of structured processes that provide evidence of quality.

5BB/11

Learning as positioning: A qualitative study of junior residents' workplace learning in oncology

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Background: This pilot-project aimed at investigating the learning potential of different workplace situations at a Danish oncological ward with a focus on team cooperation and communicative skills-learning of junior residents.
Summary of work: The study applied a short-term ethnographic research method in postgraduate medical education using positioning theory, i.e. studying the discursive production of self and team. Data was based on qualitative interviews (10 junior residents) and six full days of field observation. The aim was to gain insight into how the junior residents narrate their experiences in different workplace situations in which they learned to be a part of the professional team. Data was examined through thematic analysis e.g. using thematizing and content clustering.
Summary of results: The study pointed towards a nuanced understanding of learning potential of different situations. The two recurring themes were 1) proximal role models in senior doctors, and 2) awareness of learning potential in which the junior residents were positioned or positioned themselves with respect to the rights and duties in their clinical workplace. Positioned selves arose in dilemmas of patient encounters, team ideals, and senior junior resident's expectations.
Conclusions: Proximity of senior doctors and the positioning of the junior resident are vital categories for understanding how junior residents learn to navigate within patient-centered communicative dilemmas in different workplace situations.
Take-home messages: Positioning theory forms a fruitful framework for analyzing dilemmas of medical workplace learning. Physical context, other professionals, patients, as well as imaginary positions can shape the learning landscape of junior residents.

5BB/12

The impact of the economic downturn on Residents´ external rotations: A four-year study in a Tertiary Centre in the Murcia Region of Spain

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Background: Optional paid external rotations (ERs) have long been considered a very important element of the Residents' Training Program, giving the trainee an opportunity to enhance his/her knowledge and skills (technical and other) and providing him/her with a wider educational and training perspective
Summary of work: Given the impact of the economic downturn on healthcare budgets in general, we wished to investigate its specific effect on ERs in a Tertiary Centre in South-eastern Spain.
Summary of results: A total of 391 ERs were approved during the four year study period with an overall 26% increase from 2009-2012. When analysed according to the destination hospital, the trend was either static (national) or it increased (regional and international). The average duration of ER, expressed in median and interquartile range [ICR], across the four year study period did not change significantly: 60 [30-78], 60 [30-61], 60 [31-61] and 50 [30-61], respectively.
Conclusions: Surprisingly, despite the economic downturn, there has been no decrease in the frequency or duration of ERs during the past four years.
Take-home messages: Maintaining external rotations during an economic crisis is highly encouraging given the importance of such external rotations during the Residents' Training Program.

5BB/13

Developing the high flying registrar - a qualitative evaluation of the Severn Deanery education scholar programme

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Background: The introduction of the Education Scholarship and Education Fellowship programmes in the Severn Deanery in 2008 was in response to an emergent need for a more formalised career structure for the most able GPSTs and specifically for identified education scholars to progress over time from a scholar to temporary and substantive TPD posts.
Summary of work: Semi-structured interviews with all 15 education scholars on the value and acceptance of the scholar's scheme. All data transcribed and emergent themes extracted.
Summary of results: Findings showed unequivocal and universal support for the scheme. GPSTs have specific educational needs which need to be identified early on in their career and nurtured to bring out talents. A comprehensive induction programme, delivered at the start of the education scholar scheme, is crucial to

identifying educational pathways and opportunities for specific project work. The self-directed nature of the education scholar scheme suited scholars who were already self-motivated and autonomous practitioners. Future opportunities for specific marketing roles to promote the education scholar scheme, targeted at recruiting future scholars, should be explored using scholars who were considered 'education influentials'. The importance of high quality mentoring is essential for the success of the education scholar scheme. Finally, scholars experiences of the scheme resulted in short term intentions in progressing to a TPD role and a 're-affirmation' of their future long term education career plans.

Conclusions: Future educational benefits of similar schemes need to be explored in other Deaneries nationally; Early identification of GPST 'education influentials' to nurture talent within and across Deaneries.

Take-home messages: The GP Education Scholar Scheme is valued and accepted amongst all GPSTs who have participated in the scheme. GPSTs have specific educational needs which need to be identified early on in their career and nurtured to bring out talents.

5BB/14
A Comprehensive Graduate Medical Education Program Established Through Cooperation Among Seven Medical Schools and Affiliated Hospitals in Japan

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Background: It is essential to establish and maintain a high quality program for graduate medical education (GME) in developing residents and fellows with skill, knowledge, and professionalism. In addition, insufficient numbers of doctors in certain regions and skewed distribution of doctors in clinical specialties has recently become a significant social problem that needs to be addressed urgently in Japan.

Summary of work: To resolve this problem, we have developed an innovative GME program as a cooperation project with seven medical schools (Keio, Tokai, Saitama, Kyorin, Iwate, Toyama, and Tokyo Dental College) and their affiliated hospitals since 2009. We have built (1) 135 flexible training courses, including an exchange program between medical schools and affiliated hospitals, (2) a web-based registration and assessment system for trainees, (3) an internet conference and seminar system among these hospitals, (4) workshops in clinical simulation and anatomy laboratories to enhance clinical skills, and (5) a symposium and seminars to teach medical ethics and professionalism in collaboration.

Summary of results: We have established a wide range of courses designed to secure a high level of skill, knowledge, and professionalism through a tight network and cooperation among seven medical schools. The web-based program systems improved a regional gap in obtaining the most up-to-date medical knowledge and information.

Conclusions: The residents and fellows have been highly motivated and efficiently educated to become medical experts through their participation in this GME program.

5BB/15
The comparison for two postgraduate general medical training programs: a multi-center, prospective cohort study in Taiwan

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Background: Postgraduate general medical training (PGMT) has attracted attention since 2003 in Taiwan. From 2011 to 2012, Taiwan had two mandatory PGMT programs. In Program A, medical graduates, not affiliated to any specialty department, received 12-month PGMT rotating in various specialties. In Program B, medical graduates, already affiliated to a specialty department, received 6-month PGMT, with 3-month training in their specialty.

Summary of work: Five hospitals participated in this study. Four assessment tools, i.e. Mini-CEX, CbD, DOPS and MCQ, were used to assess each resident's clinical performance (Comprehensive Assessment for Clinical Performance, CAP). Mini-CEX, CbD and DOPS were translated to traditional Chinese with some modifications. All first-year residents took MCQ before starting the PGMT, and took MCQ after completing the PGMT. Only the first and the last assessment of Mini-CEX, CbD and DOPS were included for analysis. All the pre-test, post-test and the interval between the pre-test and the post-test of the four assessment tools, gender and age were included for building a singular value decomposition (SVD) model. Each resident, based on the SVD model, had a CAP score reflecting their overall clinical performance. Student t test then was used to compare the CAP scores between the two groups.

Summary of results: The CAP score for Program A was significantly higher than that for Program B (p<0.0001).
Conclusions: Medical graduates receiving 12-month PGMT by rotating in various specialties did better in general medicine than those receiving 6-month PGMT, with 3-month mandatory training in their specialty.
Take-home messages: Postgraduate general medical training rotating in various specialties has better clinical performance than that only rotating in a single specialty.

5BB/16

A Multi-Faceted Model to Achieve Competency in Practice Based Learning in Graduate Medical Education

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Background: Competency in practice-based learning (PBL) requires deliberately and rigorously questioning current practice, locating and accurately interpreting relevant literature and incorporating evidence into clinical decision-making.
Summary of work: We develop our internal medicine residents to attain PBL knowledge, skills and behaviors for successful lifelong learning through a multi-step, layered curriculum in evidence based medicine (EBM) spanning the 3-year residency training.
Summary of results: Our EBM curriculum includes intern-year pre- and post-assessments of online searching, with structured feedback. Interns participate in interactive didactic instruction and actively supervised literature critical appraisal. Post-assessment confirmed that online searching skills have significantly improved from pre-intern year to post-intern year. Each junior-level resident receives mentorship to individually prepare and facilitate a journal club workshop among peers, students and faculty. Senior residents prepare a one-hour grand rounds style presentation utilizing EBM skills to incorporate key clinical evidence to answer focused clinical question(s). Other PBL activities span the course of residency training, including multiple-per-week interactive and interdisciplinary resident reports where clinical questions lead to evidence sought and reported back through a resident report blog. Resident-led journal clubs reinforce literature interpretation skills.
Conclusions: Our multi-tiered model permits graduate trainees to attain competency in PBL through online assessments, formal instruction and facilitated learning and teaching. Incorporating active learning methods throughout the curriculum has supported objective

improvement in resident searching skills. Our curriculum deserves further development in assessment of literature interpretation skills.
Take-home messages: A structured, multifaceted EBM curriculum intercalated within a graduate medical education program actively develops knowledge, skills and attitudes that support career-long practice based learning.

5BB/17

Relationship between knowledge and skill of Basic Life Support based on AHA2010 in Interns of Kashan University of Medical Sciences - 2012

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Background: The studies showed the survival rate after sudden cardiac arrest depending on the initial cardiac rhythm and early recovery is different from 2 to 49%. BLS is important to the extent that if not starting CPR, the victim's chance of survival decreases from 7 to 10 percent for every one-minute delay. Interns are critically important during a CPR process, so the relationship between their knowledge and skill of Basic Life Support studied.
Summary of work: A cross-sectional study was conducted with all 69 interns of medical faculty in Kashan using a knowledge questionnaire and checklists of chest compression, opening airway, mouth to mouth breathing designed based on AHA2010 CPR protocol and confirmed by 10 experts. The test was done on 2 programmable simulation manikins in clinical skill center.
Summary of results: The mean of interns' chest compression, opening airway and mouth to mouth breathing scores respectively were 8.94±3.73, 10.04±5.21, and 6.92± 4.84. The knowledge score of BLS was 9.56±2.17 and the Pearson correlation between knowledge and skill was significant.
Conclusions: Practical education in BLS needs to be emphasized.
Take-home messages: Practical education in BLS needs to be emphasized.

5BB/18
"Growing your own": developing a dedicated, educated health workforce

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Hilary Whyatt (University Hospital South Manchester, UHSM Academy, Manchester, United Kingdom)

Background: Workforce modernisation is a key strategy to ensure that patients receive the right care, by the right people, in the right place. The North West of England is leading the way in pioneering a Healthcare Apprenticeship scheme and developing Assistant Practitioners to address this need.
Summary of work: We report on the collaboration between educators one UK hospital and describe how emerging communities of practice are impacting on learning environments, trainees, workplaces and patient care. Together the teams support over 130 apprentices and 450 trainee Assistant Practitioners.
Summary of results: Although staff on the two schemes shared many similar objectives and challenges, the teams did not initially work together. As a relationship between the teams formed, resources were built and shared, resulting in a better experience for trainees and other stakeholders. Aware of each others' practices they became brokers and champions across multiple workplaces, supporting managers, mentors and strategic development of the roles. Facilitating communities of practice in other areas will be discussed along with the broader implications for workforce development, interprofessional working, distributed teams and social mobility.
Conclusions: Developing communities of practice around the training of pre-registration staff successfully improves the experience and expertise of educators and trainees alike, without investing more financial capital. This has implications for healthcare systems in times of decreasing resources.
Take-home messages: Lessons can be learned from education and training initiatives beyond medicine.

5CC Posters: eLearning
Location: South Hall, PCC

5CC/1
Developing a self-directed e-learning package to enhance radiological interpretation in medical students

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Background: The ability to interpret an X-Ray is a vital skill for graduating medical students which guides clinicians towards accurate diagnosis and treatment of the patient. However, research has suggested that radiological interpretation skills are less than satisfactory in not only medical students, but also in residents and consultants.
Summary of work: This study investigated the effectiveness of e-learning for the development of X-ray interpretation skills in pre-clinical medical students. Competencies in clinical X-Ray interpretation were assessed by comparison of pre- and post-intervention scores, where the e-learning course was the 'intervention'.
Summary of results: Our results demonstrate improved knowledge and skills in X-ray interpretation in students. Assessment of the post training Year 1 students showed significantly higher scores than the scores of Year 2 students undertaking the same assessment at the same time.
Conclusions: The development of online simulation education allows students to perfect their skills and allows them to learn the information at their own pace. The teaching of radiology lends itself particularly well to implementation on a computer-based format due to the highly visual nature of the content. The development of the Internet and advances in multimedia technologies has paved the way for computer-assisted education. As more rural clinical schools are established the electronic delivery of radiology teaching through websites will become a necessity.
Take-home messages: The use of e-learning to deliver radiology tuition to medical students represents an exciting alternative and is an effective method of developing competency in radiological interpretation for medical students.

5CC/2
Canine 3D Software in Veterinary Medicine Education: a new approximation in using diagnostic medical images for Anatomy teaching for undergraduate students

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Background: The canine 3D software development arises in the context of implementing NTICs in teaching and learning processes. Here, we have designed a multimedia educational material that will facilitate the understanding, analysis and application of anatomy in all courses in Veterinary Medicine where it is required.
Summary of work: The Canine 3D program was developed with the purpose of facilitating the study of the dog body systems by using pictures and videos of anatomical and clinical-surgical procedures such as radiology, dissection, Endoscopy, Laparoscopy and ultrasonography to recognize interactively and with a clinical approach, the anatomic relationships of anatomical components and systems. The implementation of this program will support the teaching, collaborative and individual learning, creativity and research, leading to stimulation of the exploration and development of different processes and applications that make solving relevant problems more efficient.
Summary of results: The software consists of systems, clinical tools and active zones that have a 3D graphical interface with interactive layers of different systems including osteoarticular, muscular, cardiovascular, respiratory, urinary, female and male reproduction. The program operates in Windows, Apple and Android systems.
Conclusions: It was possible to develop a new 3D multimedia educational material that will be used as a reinforcement of classroom lecturing, and that will help in the process of active and autonomous non-attendance teaching and learning, thus promoting a more active role of the undergraduate student in their own learning process.
Grant from FIAC UAB1102

5CC/3
The teaching methodology accent shift from "what to learn" to "how to get and arrange that for learning"

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Background: The number and diversity of Internet resources transform undergraduate student tutors from information carriers into supervisors orientating students into information wide streams. Tutors can develop students' ability to choose and link correct information fragments properly via solving practical problems.

Summary of work: Two types of assignments on "Medical and Biological Physics" were created for two groups of 20 students each. Separate task sets training students in theories applications were of the first type. The second one was of practical problems form. Each problem covered several discipline themes. To solve problems students should go the continuous way. To support their steps the tutor compiled theoretical materials also serving the students as examples of proper information choice and linkage information for solving complex problems.

Summary of results: 36 separate assignments required to complete "Medical and Biological Physics" were interpreted as 9 complex practical problems. These problems were installed at the University website through developed computer testing program providing the feedback for submission with a variety of forms as analytical derivations, numerical estimations, graphical presentations, statistical processing, etc. After the first two months' study the problem orientated group shown 20% lower results than traditionally taught students. After the next three months the first group has shown 35% higher level on average.

Conclusions: Complex practical problems as forms of assignments develop students' methodology of analysis and link Internet resources into logical chains.

Take-home messages: To navigate students across the information oceans is now the tutors' main task.

5CC/4
Developing dialogic e-learning for osteopathic professionalism

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Background: The GOSC regulates approximately 4700 UK Osteopaths and seeks to foster a community of learning in practice. It recently released new Osteopathic Practice Standards and Guidance and is developing dialogic e-learning programmes for practitioners based around them.

Summary of work: Articulate software is used to develop online dialogic programmes combining written scenarios and videos, accompanied by critical thinking exercises based on the principles of Situational Judgement Tests. Dialogic learning is achieved by providing formative feedback from the learning community, permitting reflection and re-application to the issues in the scenarios. The scenarios have been scripted by GOsC officers with responsibility for Regulation and Professional Standards, and an education consultant with experience of professional Fitness to Practice procedures.

Summary of results: To enhance dialogic learning, we have included Likert scales that require learners to make judgements about the severity and nature of lapses in professionalism within the scenarios. Data are collated and reviewed against responses from experts and role models in UK osteopathic professionalism, to identify areas of congruence and dissonance between learners and experts/role models. This will guide the GOsC and the Osteopathic Educational Institutions in the UK in providing relevant learning opportunities in the future.

Conclusions: Online software analytics can be used to facilitate dialogic learning in a community of practice such as Osteopathy by providing feedback and reflective learning functions.

Take-home messages: Regulatory organisations can use dialogic e-learning to foster learning in practice around the standards expected of practitioners in their communities of practice and learning.

5CC/5
ISMETT Nursing Education Program For Development Of Advanced Perianesthesia Competencies

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Background: Pre, intra and post procedural care of patients undergoing interventional procedures requiring anesthesia is critical in determining successful outcomes. ISMETT treats critically ill patients waiting for solid organ transplant. Interventional procedures are part of our work-up protocols, and are often needed in acute or chronic patients at risk of procedure complications. ISMETT's interventional services work closely with the PACU. PACU nurses receive specialized training from ISMETT's Nursing Education, and Anesthesia Departments, and from Simulation Centre in the areas of ACLS/BLS/PALS, EKG interpretation, airway

management, medications, and conscious and deep sedation. PACU nurses are supervised by an attending anesthesiologist, provide optimal care, and communicate with attending physicians.

Summary of work: Preprocedural care: Patients arrive for interventional procedures in the PACU, where nurses assess clinical status, optimize preprocedural therapy, check exams, control the radial or femoral routes, and give psychological support. Intraprocedural care: PACU nurses are involved in conscious or deep sedation, and are responsible for checking hemodynamic and respiratory status. In agreement with the attending physician, PACU nurses are ready if the patient becomes unstable. PACU nurses manage IABP, optimize gas exchanges, and provide emergency medications, as well as emergency ventilatory assistance and CPR. Postprocedural care: Patients return to the PACU for cardiovascular monitoring, for full assessment, according to attending physician's orders.

Summary of results: PACU nurses provide optimal care and develop advanced competencies thanks to an internal training program that includes medical simulation.

Conclusions: Integration of a traditional education program and simulation training at ISMETT has provided these specialized nurses with advanced competencies, and patients with high quality nursing care, contributing to optimal results.

Take-home messages: Perianesthesia nursing competencies are central in managing critically ill patients requiring anesthesia. At ISMETT these competencies are acquired through an internal training program that includes extensive simulation training.

5CC/6
Challenges of implementing Moodle as a learning platform in a medical school

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Background: Lack of integrative practices and of students focused teaching methodologies to promote integration between basic and clinical disciplines set the stage for E-learning to be used as a tool that can fulfill these needs.

Summary of work: First year medical students were given a 40 hour course on the use of Moodle as a platform and a survey was conducted in order to determine their perception of their own ICT skills and the possibility for using the Moodle platform for

learning. There was a 60% response rate among 110 students.

Summary of results: Even though 99% of the responders had a computer at home and used it regularly they reported difficulties using Moodle. These difficulties included poor understanding of the user interface (44%), finding access buttons (45%), posting information (52%) and using forum discussion (69%). As a learning tool, 53% of students agree that the interface is fair or poor and do not believe that the platform provides flexibility in terms of time (69%) and learning place (62%). The majority of students (90%) do not feel motivated to use Moodle as a tool for learning. While students reported poor familiarity with Moodle, they did not report signs of digital iliteracy as 75% informed use of social networks.

Conclusions: Our students are properly equipped, with good access to the network, but lack the incentive to use this methodology.

Take-home messages: E-learning may be a useful integration tool, but to achieve this goal, there is a need to adequate training and support to implement Moodle as an E-learning platform.

5CC/7
Interdisciplinary clinical case discussion using e-learning environment

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Background: E-learning in medical education is limited by the concept of primary role of bedside teaching. However, medical schools can certainly benefit from e-learning. Our University piloted its first e-learning project "Interdisciplinary clinical case discussion using e-learning environment" involving 13 junior interns and 4 faculty members of clinical departments.

Summary of work: We created the clinical case blog, which included patient presentation, physical examination, learning objectives and the first task for learners. The learners could comment on the clinical case. Different faculty members joined in into the discussion at specified time, evaluated previous comments and introduced new data (biochemical, cytological, microbiological, etc.).

Summary of results: The pilot project took 2 weeks to complete and all participants were surveyed on their experience. By respondents' opinion, the major advantage of e-learning is absence of rigid time-

constraints; the major disadvantage is necessity of technical support. All respondents were satisfied with the results and recommended e-learning for discussion of 'interesting' clinical cases in the future.

Conclusions: The results could be best concluded by a student's comment: "E-learning really made me re-think my abilities, see my own mistakes and get corrected by more experienced colleagues. This actually happened to me in the beginning of the case. I could feel myself to be 'a real doctor' and certainly recommend this format of learning into routine practice. I just loved it all!"

Take-home messages: Medical education should not be bound to only patient's bedside but make the best use of available technology as well.

5CC/8
The implementation of distance teaching in the Swedish Regionalized Medical Program - multiple small steps of change for an inert system

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Background: This study examines possibilities and challenges when implementing distance teaching for teaching theoretical content in the Swedish regionalized medical program (RMP). The distance teaching by means of digital technologies and Technology-Enhanced Learning (TEL) is seen as an alternative to the face-to-face teaching in the medical program.

Summary of work: A framework built upon the work of Sannino (2008) including the notion of dominant and non-dominant activities, conflicts and transitional actions were used for analysis.

Summary of results: In the results a number of conflicts were identified which inhibit medical teachers from adopting especially interactive and communicative elements of distance teaching. Those were for example teachers' digital literacy, lack of trust in digital teaching tools and willingness to keep to the face-to-face teaching practice.

Conclusions: Illustrated by transitional actions it is discussed how the non-dominant distance teaching activity actually functioned as a catalyst for minor but important changes in the medical teachers' dominant face-to-face teaching practice. Based on the results from this study one can raise the question of what really can be seen as a success or a failure when implementing TEL in medical education. Implementation processes in medical education is a process of interplay between dominant and non-dominant activities. Recognizing such interplay provides possibilities for future educational development.

Take-home messages: Implementing distance teaching is not a straightforward process but rather characterized by small steps of change that needs to be continuously supported by the medical program management.

5CC/9
Simulated learning by clinical trainees of communications strategies: facilitating development of collaborative competency in an acute care environment

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Background: Patient complexity in the setting of an acute care environment may provide challenges to learning effective collaboration competencies (role knowledge and communication strategies) by clinical trainees. Providing opportunity to learn collaboration strategies in a small group virtual environment to be applied to their clinical training experience may facilitate collaborative competency development.

Summary of work: We had previously developed a virtual Interprofessional learning program of a COPD patient preparing for discharge from an acute care environment. For this project, the COPD simulation is utilized to facilitate small group, currently uniprofessional, one hour interactive learning among clinical trainees. The concepts of shared mental models (SMM) and situational awareness (SA) are introduced as a framework for complex collaboration scenarios, but the focus is on learning SBAR (situation, background, assessment and recommendation) as a collaborative communication strategy.

Summary of results: 32 responses from 26 internal medicine trainees and 6 physiotherapy students evaluating the application of these 3 tools using a 3 point rating scale demonstrated the following results: SMM 66% very useful and 34% somewhat useful; SA 75% very useful and 25% somewhat useful; SBAR 75% very useful, 22% somewhat useful and 3% not useful in their clinical environment. Comments encouraged all health care providers become familiar with these tools.

Conclusions: Virtual simulations of patients similar to those seen in acute care provide opportunity for interactive interprofessional learning of the collaboration competency.

Take-home messages: Collaboration competencies introduced in virtual learning environments have clinical applications.

5CC/10
How Can Collaborative Online Educational Environments Be Developed for Busy Health Professionals? Getting People Talking in Less Than Four Hours

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Background: Over the last two decades demand has risen for online CME that is engaging and effective at imparting complex ideas and concepts, without placing further strains on already time-poor health professionals. The OTAC is an established online educational course in the field of addiction medicine. In 2011 its educational design was revised to reduce contact time for busy health professionals without compromising educational quality, by encouraging the growth of collaborative online learning environments.
Summary of work: The course was revised in the context of a new educational design model, developed within WEDG, around the three domains of Knowledge, Process and Practice (KPP). The revised course encouraged, collaboration self-directed learning and participant ownership of their existing and deficit knowledge. Participants collaborated in a professional practice forum with peers and facilitators to achieve shared learning goals.
Summary of results: Over a twelve month period the forum succeeded at fostering collaboration and discussion amongst users, and assisted them in meeting the learning objectives of the program. However it was necessary to implement unexpected scaffolding measures to achieve this success.
Conclusions: Collaborative online environments can be effective tools for autonomous learning over short durations, by encouraging breadth of engagement with resources and personal knowledge review as well as encouraging effective engagement in an online collaborative environment were those skills are both reviewed by experts and challenged by peers.
Take-home messages: Effectively growing collaborative online continuing medical education communities can provide a major challenge to educators. However such communities are increasingly valuable tools for medical education and knowledge translation in the health sector.

5CC/11
Learning effect of trans-disciplinary case reflective web forum on clerkship moral cognitive decline

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Background: Moral sense and ethical reasoning skills are regarded as the educational indicator of medical ethics. Studies have shown these two moral cognitive abilities will decline after exposure on the highly homogeneous and professional clinical environments.
Summary of work: We enrolled 82 6th year medical (47) and 4th year nursing (35) students. We assess the learning effect of trans-disciplinary case reflective practice on clerkship moral cognitive decline through structured four box ethical reasoning teaching, 3 weeks' closed web forum transdisciplinary clinical cases discussions, reflective writings, and medical humanities extended reading. We used the same anonymous questionnaire of 14 questions, before and after the course. At the end of the course, 54 6th year medical (34) and 4th year nursing (20) students completed the questionnaire.
Summary of results: Understanding the importance of reflection was the same before and after the course. Overall reflective knowledge and skills, communication ability, talk ability, law knowledge, understanding the role of individuals in a team, team mutuality, self protection ability, and reflection ability was much improved ($P < 0.05$). Ability to express empathy, interactive capabilities, listening skills, understanding patients' feelings, understanding the essence of doctors' attention on patients, and patient protection ability improved, but there was no statistical significance.
Conclusions: This teaching model demonstrated much improvement on some items of knowledge and skills of communication and reflection. However, some items did not show significant improvement. This means long term practice is important.
Take-home messages: We suggest introducing this model to senior students. Longitudinal study is suggested for evaluating the long term effects.

5CC/12
Fostering academic writing and publishing skills in medical students and junior doctors: 360-degree evaluation of an online innovation

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Background: There is increased pressure on medical students and junior doctors to publish. There are limited opportunities as an undergraduate in gaining medical writing experience, most of which are reliant on a supportive supervisor. An online peer-reviewed medical notes revision website (Fastbleep Notes) was established to provide medical students and junior

doctors the opportunity to publish and edit clinical articles within a supportive environment.

Summary of work: Written reflections from a purposive sample of those involved in the project, including users, authors, editors and managers. Feedback was sought in four domains; motivation to engage with the project, benefits and barriers to engagement, and a free text domain.

Summary of results: Overwhelmingly, participants felt engagement with the programme was beneficial, though this was felt most strongly by those who engaged most and felt most invested in the project. Benefits included "being creative", "giving something back", "preparing to publish" and "a sense of satisfaction". Barriers included "struggling with technology" and "difficulty getting started". Participants had built confidence and felt part of the "Fastbleep community" through this initiative.

Conclusions: Fastbleep Notes is a worthwhile initiative to help foster collaboration, academic writing and publication skills in medicine. Engagement was crucial to maximise the benefits, and thus next steps will focus on improving and facilitating engagement for newcomers to the project.

Take-home messages: Medical students and junior doctors were able to lead each other through the process of academic publishing, and the peer-led environment fostered a sense of community engagement.

5CC/13
On-line evaluation in medical education

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Background: One of the characteristics of active learning methodology introduced in many medical schools in the last decade is the stimulus for maturation of the student in pursuit of knowledge and capacity development of the "learn and think for yourself."

Summary of work: The main objective of this study was to assess how would be, in a chosen elective discipline during the medical course, the behavior of students submitted to online evaluation without the physical presence of teachers. Evaluations were online inserted through the software Moodle at the end of the course. The first evaluation, discussion of a clinical case, allowed free study and access to bibliographic references. The second evaluation, with right/wrong questions and restricted time to resolution did not allow free consultation. Online feedback was given, with commentary and suggestions in the interpretation of the clinical case and the right/wrong questions.

Summary of results: From 20 students, only one (5%) did not show commitment to the proposed schedule

and did not answer the questionnaire adequately. Additionally, 90% of the participant students considered the online evaluation as very satisfactory and really important for learning.

Conclusions: Experience has demonstrated commitment to the process by the students, and satisfaction with this type of assessment.

Take-home messages: For motivated students, online evaluation is possible and reliable. We think that this evaluation model should be used on regular activities and not only on elective courses.

5CC/14
From Learning to Implementation: An Electronic Commitment to Change at Large CME Conferences

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Background: St. Paul's Hospital Family Medicine CME committee piloted an electronic commitment to change tool called "TIPs" (Tool to Implement tips and Pearls into Practice) to improve reflective learning at continuing medical education conferences.

Summary of work: At the St. Paul's Family Medicine conference in November 2012, participants (n=1400) were invited to use TIPs. One month later they received an email of their top 3 tips/pearls identified from the conference. Subsequently, two months later, an email of what learners intended to implement to practice, a summary of the top 10 learning themes and a follow-up survey was sent.

Summary of results: 182 family physicians identified their top three learning tips they intended to implement into practice. At two months, 53 participants completed follow up surveys with 98% saying they: a)   "liked to use an electronic reflective learning tool at a conference"; b) preferred email as the method to be reminded about their commitment to change. Regarding TIPs usage: a) 72% of respondents found the reminder email of their top 3 tips was impactful; b) 60% of respondents were female; c) 43% were within the first 10 years of practice; d) 65% found it easy to use; e) 70% were very satisfied with TIPs. Finally, 92% of respondents reported they would use it again if offered at a conference.

Conclusions: SPH FM piloted and gathered data on TIPs, an electronic reflective learning tool that had perceived value for participants and had impact on practice.

Take-home messages: It is possible and preferred by participants to utilize electronic reflective learning tool at CME conferences.

5CC/15
Online web based discussion for block teaching modular curriculum in postgraduate health professionals' curriculum. The Ethiopian experience

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Background: Despite an increased number of medical schools and frequent revision of health professional training curriculum in Ethiopia, little attention has been given to an innovative educational research improving the existing teaching and learning practices.
Summary of work: Between December 2011 and February 2012 two groups, of regular (N=21) and counting education program (CEP, N=52) postgraduate students, participated in online discussions via a Google group created by the instructor as part of a Biostatistics and Research methods module. In each week of the three-week module, the course instructor initiated the online discussion by posting few discussion questions that allow students to share their idea to the group. Participants' collective learning experience was assessed using content analysis of stored text messages of all e-mails generated during the online web discussions.
Summary of results: A total of 702 emails were exchanged during the three weeks block teaching, of which 250 emails (35.6%) were posted by regular students and 452 emails (64.4%) by part time (CEP) students. In terms of message content, 83.3% of regular and 65.5% of part time students' messages were pertaining to the topic of discussion. The majority of students in both groups rated high satisfaction level toward their online experience.
Conclusions: Online web based discussion could be a valuable addition to face-to-face class room teaching to improve students' engagement and interaction in an intensive block teaching postgraduate health professionals' curriculum.
Take-home messages: Online web based discussion could be applied in resource limited setting.

5CC/16
Learning with Instructional Video

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Background: The instructional video is a medium that has a language of its own, whose sequence induces to the vewer to synthesize feelings, ideas, concepts, actions and reactions, as well as capture and reproduce exceptional real situations.
Summary of work: As part of a teaching strategy, the Department of Integration of Medical Sciences of the UNAM, asked students enrolled in subgroups 2207, 2208 and 2221 perform a basic neurological examination video with different materials and strategies.
Summary of results: 30 students develop a neurological examination video of a family member or friend to evaluate the central nervous system function. The videos were uploaded in a virtual classroom, were evaluated by means of a checklist considering 30 elements that include the physician-patient relationship, the exploration of the 12 cranial nerves, the muscular limbs, tendon reflexes, sensory system , coordination, balance and gait.
Conclusions: The video experience ease the understanding and retention of content to students, encouraging the development of skills that sets the Curriculum 2010 highlighting that related to effective communication.
Take-home message: The instructional video promotes the development of skills and knowledge retention long term.

5CC/17
Exactly when, what and who? Tracking students' use of a medical reference app

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Background: Brighton and Sussex Medical School delivers a mobile learning initiative in which medical students are given a suite of high-quality electronic textbooks through a bespoke app on their own devices. Monitoring accurate use of the resources provides rich data for evaluation but, due to the 'blackbox' effect of handheld computing devices, it can be difficult to gather this data.
Summary of work: We have co-developed novel data collection that allows us to track the students' use of the mobile app. Earlier iterations required the students to synchronise their handheld devices manually but there was impeding variation in compliance. The latest smartphone app features automatic 'push' synchronisation, increasing the detail and reliability of

this new data collection. The datapoints available include individual student use, time of access, and exact pages accessed. Geographical location is not recorded, although it is possible to map the time data to scheduled activities within the teaching timetable.

Summary of results: Data is being collected over the academic year 2012/2013. We will be able to accurately describe patterns of use across the duration of the study period, how pages are accessed at different times of day, and which resources are the most popular. We can also see how individual students differ in their use of the app.

Take-home messages: Accurately monitoring use of the app allows us to: Get the actual picture of what information is used, when, and by which users; Identify the most popular reference and optimise which texts are made available; Control software licensing and minimize software related expenses.

5DD Posters: The Curriculum
Location: South Hall, PCC

5DD/1

Imagining a post-structural curriculum for palliative care: Reflections on healthcare workers' experiences in rural South Africa

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Background: This paper offers an imagined curriculum for palliative care based on the experiences of healthcare workers in rural parts of South Africa and its impact on patient care. Many of the patients receiving palliative care live in impoverished homes and have had minimal access to healthcare. Thus there is uncertainty about whether they will die because of a life-limiting illness, or because sophisticated medical care is not available. An additional anxiety is the tensions between their spiritual beliefs and cultural practices and the palliative care approach.

Summary of work: Six healthcare workers, four qualified and two unqualified volunteers who provided palliative care were interviewed using a photo-elicitation technique. Data was analysed using a bottom-up approach.

Summary of results: The caregivers' experiences of home-based care made apparent the limitations and ineffectiveness of a curriculum that excludes patients' social context, spiritual beliefs and cultural values in respect of healthcare, dying and death. The curriculum does not consider the event of an uncertain diagnosis or prognosis.

Conclusions: A curriculum, reconceptualised through a post-structural lens will not only respond to the needs of patients and caregivers, it is also a more resilient means to capture the simultaneous, yet different realities within the same context or across multiple contexts.

Take-home messages: A palliative care curriculum should prepare caregivers for uncertainty in practice and a post-structural lens may provide a tool for reconceptualizing current curriculum.

5DD/2
Medical education must be driven by local population reality, mainly those indigenous ones

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Paulo Marcondes Carvalho Junior (Marilia Medical School, Marilia, Brazil)

Background: Medical education must be driven by local population reality, mainly those indigenous ones.

Summary of work: We conducted a cross-sectional study with 14 physicians in a pediatrics residency program at a pediatric hospital in northern Brazil. All of them answered a questionnaire with Likert scale questions regarding his prior training for indigenous patient care.

Summary of results: 14 (34.2% of 41) physicians answered the questionnaire. Ten of the 14 physicians often interviewed Indians during undergraduate education, and 12 are still serving this population. The majority (10) feels comfortable on indigenous patient care. About 50% of participants reported feeling technically prepared for this care, however 21% of them use the vaccination schedule specifically for the indigenous population. The majority (64%) reported often feeling it would take training focused on indigenous health and also suggests that teachers in undergraduate education rarely give attention to indigenous health. Related to colleagues and mentors residency in pediatrics, most (64%) also reports that technical knowledge to health care in this specific population is rarely demonstrated. 64% of respondents believe it to be difficult to deal with interference only in a few moments. Patient dissatisfaction is sometimes perceived by 78.5% of respondents.

Conclusions: Even having been trained during undergraduate education for the health care of indigenous populations, it is clear there is a need for greater integration of teaching and service to train professionals in the reality of healthcare of the population they serve.

Take-home messages: Special populations such as indigenous ones needs much more attention in the medical curriculum.

5DD/3
Use of a practical guided study to promote an integrative approach to learning

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Susan Whiten (University of St. Andrews, School of Medicine, St. Andrews, United Kingdom)
Peter Driscoll (University of St. Andrews, School of Medicine, St. Andrews, United Kingdom)

Background: Emphasis is increasingly placed on the need for horizontal and vertical integration in medical school curricula; this encourages an understanding of medicine as a function of collated information, rather than as merely a sum of individual disciplines. The traditional didactic, teacher-centred approach to learning does not however address the need to engage students in active study. Although the 'Problem-Based Learning' method attempts to address this, many agree that a 'middle of the road' combination of traditional and innovative methods is the most efficient strategy.

Summary of work: At the St Andrews University Medical School, guided studies are an integral component of the curriculum. Guided study aims to encourage independence and "deep" learning whilst ensuring

learning objectives are achieved, predominantly using a reading/writing learning style. We aim to extend this approach by promoting horizontal integration of basic sciences, and vertical integration of clinical reasoning, through the use of a practical guided study. Students are supplied with a study guide relating to a patient, who develops an inguinal hernia and diverticulitis secondary to a long standing history of chronic constipation. The questions cover anatomy (using prosections), physiology, histology and clinical skills over 4 stations each lasting 15 minutes.

Summary of results: The students will complete a questionnaire to evaluate whether this has been both an enjoyable and valuable learning experience.

Conclusions: We intend that this pilot paves the way for similar guided studies to complement our spiral curriculum in the future.

Take-home messages: Practical guided studies provide a novel, enjoyable and worthwhile approach to ensuring integration within a medical school curriculum.

5DD/4
Basic clinical integration in medical internship: Psychiatry and Pharmacology

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Background: Activity methodologies were used as a didactic-pedagogic strategy in the fifth-year medical course at Faculty of Medicine of Marília-Brazil. An integrative activity between pharmacology end psychiatry occurs in this year. Firstly, in this activity, the students are stimulated to do a literature search about medicines (antidepressant, anxiolytic, antipsychotic...) used in practice (ward and emergency room). Secondly, they discuss the content with the pharmacology teacher. This study quantifies students' knowledge before and after their participation in the activity and analyzes their opinion about the relevance of participation.

Summary of work: Qualiquantitative study was performed using pre and post test evaluation (multiple choice questions) and thematic analysis of the Collective Subject Speech (CSS).

Summary of results: 72 students (total=85) registered in the fifth year of the course in 2011, agreed to participate. Significant increase (p<0.001) in the percentage of correct answers in the posttest compared to pretest was observed. The central ideas obtained from the analysis of CSS were: very relevant activity; inclusion of this activity in other stages; difficulty in basic disciplines; and faculty active performance.

Conclusions: This form of integration between pharmacology and psychiatry, at the real practical activities in internship, allowed the pharmacology concepts to be expanded, making meaningful learning. Although the students indicated the need for further study of basic disciplines, the level of acceptance of this basic clinical integration is expressed in the suggestion

that this activity can be extended to other stages of the 5th year.

Take-home messages: The basic clinical integration facilitated and motivated the acquiring knowledge.

5DD/5
Renal Module in integrated Curriculum of AJK Medical College: Design, Delivery and Assessment

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Background: To address the requirements of the modern health care system, medical education has undergone a paradigm shift from traditional disciplinary teaching to outcome based integrated medical education system. Foreseeing the local demands and needs in specific and global change in general, the leadership of Azad Jammu Kashmir Medical College (AJKMC) decided to develop, implement, assess and evaluate an indigenously designed system based integrated modular curriculum at undergraduate level.

Summary of work: A multidisciplinary team of faculty members from relevant disciplines conducted meetings to develop a study guide of "Renal Module" by adopting "Six Step Approach" for curriculum development. A thematic 'Core Content' consisting of four themes was approved after thorough deliberation by module team. Learning outcomes were linked to the themes and appropriate instructional strategies and tools of assessment were defined. "Table of Specifications" (TOS) was designed according to clinical significance of the theme. TOS guided the design of instructional schedule and assessment of the 'Renal Module'. Explicit learning outcome in term of knowledge, skill and attitude were assessed through written & integrated practical assessment (IPA)

Summary of results: Module outcome was assessed through a structural written examination, comprising of SAQs & single best MCQs, whereas clinical skills and attitude outcome were assessed through 17 integrated OSPE stations. The Renal Module was evaluated by students and faculty through a pilot tested structured questionnaire. A significant number of students showed complete satisfaction on delivery and assessment of the module.

Conclusions: Design, delivery and assessment of integrated curriculum is laborious, demanding and challenging; though possible even in resource constrained environment of public sector medical college.

Take-home messages: Integrated curriculum is laborious, demanding and challenging; however, possible if there is a strong political will of the leadership.

5DD/6
Is horizontal integration between basic sciences reflected in the students' learning?

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Background: Research has been made on the role of basic sciences knowledge helping students to learn causal explanations and have a more coherent understanding of the relation between diseases and clinical features. However, it is necessary to study whether students are able to apply basic sciences knowledge to each other. In the medical curriculum Physiology is used as Pharmacology basis for understanding the pharmacological targets. Pharmacology teaching reflects this principle. Research question was: if the level of students' knowledge on the two sciences is related?
Summary of work: At the end of the second-year, 58 medical students voluntarily participated in the study. They were from three different performance levels groups: 13 high, 33 medium and 12 low. They were applied a 41-MCQ test: 18 questions on blood pressure Physiology and 23 on antihypertensive drugs Pharmacology. Questions makers were teachers from both courses who had more than 10 years of teaching experience.
Summary of results: One-way ANOVA showed a significant main effect of group performance level. Differences between groups were found in Physiology. In Pharmacology only high performance group was different, low and medium groups were similar.
Conclusions: Apparently, differences in tests scores were due to the group to which students belonged, not to the knowledge they had on Physiology and Pharmacology. The research question was not clearly answered.
Take-home messages: Studies on horizontal integration between basic sciences are needed to help students' understanding of the relation between diseases and clinical features.

5DD/7
How does study behaviour influence the contentment with a medical curriculum? Preliminary results from a core elective semester

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Background: In the 4th or 5th year of the medical curriculum in Aachen, Germany, students have one core elective semester. They can use this semester for everything from research, clerkships, study abroad, vacations, jobs, self-studies, practical training, elective courses or preparation of a doctoral thesis.
Summary of work: Eighty-four medical students in their 5th year were asked to indicate their general study behaviour, overall contentment with the medical curriculum and how they have spent their elective semester. The data was analysed with regression and regression tree analyses.
Summary of results: Preliminary results show that students use the elective semester for up to six activities. The regression analysis showed that the inclusion of a vacation, but no elective courses, predicted satisfaction with the curriculum. Furthermore, students who make use of progress testing are more content. The regression tree explains further relationships between these factors.
Conclusions: While several combinations of activities are chosen, the predictive value with regard to students' contentment of a vacation but not electives may point to a better time management of students who are more content. Generally, the students evaluated the core elective semester as an important part of the curriculum. Further research is needed to investigate which elective elements and study behaviours are predictors for students' dedication and, eventually, for their success.
Take-home messages: In a free semester, students who manage to include a vacation are most content with the curriculum as a whole, probably due to their ability to structure their time.

5DD/8
Development and initial use of the self-accomplished, self-assessment tool iCAN!-Angio specially designed for medical students studied the selected component «Angiology-Vascular Surgery»

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Background: As we are currently moving from medical school level outcomes to outcomes of specific courses, we developed a self-accomplished, self-assessment tool for students. Students were asked to use this tool before and after attending the special study module (SSM) 'Angiology-Vascular Surgery'.
Summary of work: First a SSM's guide was prepared, where the outcomes that should be met, the teaching/learning activities, the students' workload, etc. were addressed. Then the SSM's outcomes were transformed into the iCAN!-Angio questionnaire, completed by students during the first and last day of the course, declaring their agreement in several statements like "I can measure the ankle-brachial index" etc. Open comments were also analyzed.
Summary of results: A 44 question tool was developed. All 13 students participated. In average, students scored 45% the first day compared to 81% of the last day, while their professors' average final mark was 96%. Their worst first-day competence was "I can determine if the vascular access in nephropathic works properly" (14%), whereas their best "I can suspect pulmonary embolism and ask for appropriate laboratory tests in order to substantiate it" (74%), which improved to 71% and 85%, respectively.
Conclusions: Students were enthusiastic about having clearly understood from the beginning of the course what they should be able to achieve in the end and enjoyed the immediate feedback. They did not overestimate (rather underestimate) their competences.
Take-home messages: Specific Angio- learning outcomes and self-assessment tool were both very useful to students and professors in their effort regarding further development of the course.

5DD/9
Can We Do An Attractive Elective Radiology Course?

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Background: In the past, radiology elective taught medical students like an observer. Therefore, it was not attractive to medical students. But we thought that radiology has more advanced modalities and plays important roles in medical practice. Our aim was to study the attraction of elective radiology course and the confidence gained.

Summary of work: We developed the new radiology elective curriculum by mixing many teaching methods and assessments such as team-based learning, teaching film, case conference, ultrasound practice and small group discussion. Five levels Likert scale questionnaires (Cronbach's Alpha reliability 0.81) were used to ask for "Satisfaction and knowledge for choosing radiology elective" in the 5th and the 6th year medical students in the academic year 2012, after completion of radiology elective course.
Summary of results: Ninety five percent of all medical students chose radiology elective. They thought that radiology elective curriculum was good and appropriate (93.3%). The teaching film was the favorite teaching method (69%). The mean of confidence for film interpretation before and after course completion were significantly increased (2.36 and 3.87, P<0.001). Ninety three percent were satisfied and confirmed that they would not change their minds from radiology.
Conclusions: Many mixed teaching methods make radiology curriculum more interesting.
Take-home messages: An attractive radiology curriculum is the cornerstone for medical students to choosing elective.

5DD/10
Medical Students' Attitudes to Traditional and Integrated Basic Sciences Curriculums

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Background: Studying the medical students' attitudes to their academic major is significant in the improvement of the national planning and evaluation of the curriculum. This study was an attempt to investigate the students' attitudes toward the traditional and integrated basic sciences curriculum.
Summary of work: This descriptive-cross sectional study was conducted in 2010 in all of Tehran and Shahid-Beheshti Universities of Medical Sciences and 200 internship medical students were selected using simple random sampling. The students selected from Tehran University of Medical Sciences were assigned to the traditional curriculum and students of Shahid-Beheshti University of Medical Sciences were assigned to the integrated curriculum. Data collection tool was standardized self-administered questionnaire to examine the medical students' attitude. Statistical analysis of data was done using SPSS 17 software as well as independent T-test to compare the 9 items of the questionnaire in two mentioned universities.
Summary of results: For both of Tehran and Shahid-Beheshti Universities of Medical Sciences, no significant difference was observed between the students' attitude regarding the items 1, 3, 4, 5, 7 and 9 (p>0.05). However, concerning items 2, 6 and 8, there was a

significant difference. Moreover, for items 6 and 8, between the male students and for item 1, between the female students of two universities significant difference was observed.

Conclusions: In spite of the lack of positive attitude toward the real importance of the basic sciences, medical students are more interested in the integrated teaching of basic sciences.

5DD/11
Patient centredness as discursive practices in a UK medical school

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Background: Patient centredness (PCN) is a prevalent concept in medicine and medical education in the UK. Past research was concerned with establishing definitions and proxy measures. A gap is identifiable in the literature that seeks to understand how PCN is discursively constructed and how such constructs affect the reality of medical education.
Summary of work: A Foucauldian discourse analysis was performed. Four focus groups with students of varying seniority were conducted. Curriculum materials and UK policy and regulatory guidelines were examined. Analysis was concerned with establishing normalized concepts and available subject positions for patients, students and teachers.
Summary of results: Three preliminary discourses were described: 1. PCN is inherent to medicine and healthcare personnel. 2. PCN is a set of skills and behaviours which need to be learned and taught. 3. PCN is a reactive response to societal changes and pressures. PCN may increase the doctor/ patient divide, re-enforce hierarchies, and to some extent, harden professional boundaries.
Conclusions: PCN is constructed in various, at times in-commensurable, ways. These discursive practices potentially counteract the purpose of PCN where this is seen to be an increase in patient autonomy, a flattening of hierarchies and a move towards inter-professional healthcare.
Take-home messages: Educators need to be aware of the discursive potentials of the concept of patient centredness. For PCN to retain educational value, clear statements portraying its intended meaning in specific contexts, need to accompany the use of the concept.

5DD/12
"The times are changing". Influences on the evaluation of an unchanged course concept within a period of six years

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Background: Our students have to attend a course with lectures conducted by several disciplines as an introduction into fifteen disease patterns. Each day a different pattern is taught by a team of three disciplines, mainly specialists in internal medicine, physiologists, pathologists and pharmacologists. The course is offered three times a year due to rotations within the cohort.
Summary of work: The course has been offered with the same main characteristics for six years. There has been some changes in staff, but none in the overall concept: To present a clinical picture in theory and at the example of a real patient. The evaluation took place at the end of the course after the exam. Because the course had decreasing ratings by the students, the content was reconsidered in 2011 and lectures again harmonised. We also started a daily evaluation.
Summary of results: A MANOVA of the evaluation data found an expected significant effect of the year in which the course was taught. The intervention had a dramatic impact on overall evaluation rates. An unexpected main effect of the rotation and a significant interaction effect demands for an analysis of the daily evaluations. Results reveal that the unexpected effects in the MANOVA doesn't correspond to differences in regression analyses.
Conclusions: The evaluation of an established course concept shows that content harmonisation diminished year by year, but can be compensated by renewing coordination between staff members. But the adaptation of the course content to rotation plans for students is still lacking.
Take-home messages: The evaluation of an established course concept shows that content harmonisation diminished year by year, but can be compensated by renewing coordination between staff members.

5DD/13
The movement from seven to six year medical curriculum in Taiwan

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Background: In Taiwan, there are 12 medical schools with 7-year undergraduate medical curriculum for high school leavers. Having the commitment to improve medical education on its quality and efficiency, the Ministry of Education in Taiwan has formed a task force to initiate the medical curricular reform since 2008. The purpose of this study is to review the process and the preliminary results on the nationwide curricular reform.

Summary of work: In the first stage, surveys of the opinions among medical educators on the quality of current medical education were conducted. In the second stage, through series of symposia, medical education experts from abroad were invited to share their experiences on different medical curricular models. Finally, series of meetings were conducted for consensus.

Summary of results: Curricular problems were identified as redundancies/ irrelevancy, lacking integration, Information overload, and too much passive learning. About half of the participants expressed the desire to change. Through many meetings of the task force, consensus was reached to propose a new curriculum with six years in length which will be implemented in 2013. The new shorter curriculum encourages integration and outcome-standardization, fosters habits of inquiry and improvement, plus professional formation.

Conclusions: There have been changes from individual level to the institutional level on faculty development, administration, and leadership. The nationwide activities of medical curricular reform has promoted sharing and collaboration among the medical schools in Taiwan.

5DD/14
First Degree Medical Students' Face Up To Emergency

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Background: The undergraduate medical programme at a certain Brazilian public medical school follows a traditional curriculum. Due to the structure of the current curriculum, undergraduate medical students at this institution are not sufficiently skilled to provide any care in emergency situations. This is of great concern since as trauma and medical emergencies are the most common cause of disease in Brazil. Health professionals must be prepared to implement worldwide protocols in such situations.

Summary of work: This study attempted to enable first year undergraduate medical students to provide firstaid care in emergency situations, within the legal and ethical boundaries of not being a qualified practitioner. An emergency care intervention was designed and implemented. All 40 first year medical students consented and participated in the intervention. Students were assessed on their prior knowledge of basic life support using MCQs. A six month intervention that included lectures, training sessions and simulated scenarios were implemented in the clinical skills laboratory. At the end of the year another questionnaire was applied. Students were successful. Their improvement in knowledge of the subjects studied was proved.

Summary of results: The class averaged a score of 40% in the pre-test, while their post-test average was 90%. As students entering medical school clearly have an interest in medicine, and some of them complete first aid courses, it explains the 40% average in the pre-test. The post-test results demonstrate a dramatic improvement in their knowledge, and their performances in the "real" scenario confirmed their newly acquired competence in basic life support. Feedback obtained from the students confirmed their perceived pride and reassurance in being able to perform basic life support.

Conclusions: The project offers first degree medical students opportunity to get prepared to give support in emergency situations.

Take-home messages: Basic life-support training empowers first year medical students.

5DD/15
"Fol espoir": a process of curricular reform

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Background: The French group "Théâtre du Soleil" names "fol espoir" (crazy hope) the boat that takes the characters of a play (The castaways of "fol espoir") toward the ideal of building a new society. The Medical Education Program of a Brazilian medical school has been arguing, since 2009, its curriculum in order to fit the National Guidelines.

Summary of work: As it is an institution with hundreds of teachers and students involved, the working group that was formed included representatives from all its segments; a routine of meetings was established, always with results published to ensure transparency process and all the disciplines of the current curriculum were revised. The diagnosis was that the school has a traditional teaching model, primarily hospital and teacher-centered, with basic and clinical cycles disintegrated in themselves and with each other. The course does not have a Political-Pedagogical Project, there is a disengagement of much of teachers with undergraduate students and there is resistance to the field of Medical Education.

Summary of results: In order that the curriculum reform is not limited to a dispute over hours, we elaborated proposals of vision and mission of the institution, and later the competencies that should be developed. They have all been approved, and we are building the curriculum based on these assumptions.

Conclusions: The Medical Education Program is our boat "Fol Espoir".

Take-home messages: Know your school very well before entering any reform process. Listen. Avoid implementing others' reform process to your school. Find your own. Beware of enemies. Find your stakeholders.

5DD/16
Promoting student-centered learning through the use of Guided Frameworks

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Background: We developed guided "frameworks" (course development templates), to help faculty move from a lecture-based curriculum to a multi-modal curriculum. Our goal was to provide a structured mechanism for faculty to create student-centered learning.

Summary of work: The frameworks were developed with embedded design elements and instructions on how to convey and integrate the content more effectively. The lecture template provided an organized structure – Introduction/Objectives, Core Concepts including engaging student activities, and Summary, as well as links to contextual prompts and supporting material. Faculty reviewed the lecture template and we incorporated their input. We introduced the frameworks initiative at a new faculty orientation and conducted a workshop on how to use the lecture template. We are currently creating podcast templates.

Summary of results: All faculty who have reviewed the template affirmed its potential benefits. Faculty have used the template to organize their content and focus on difficult concepts. We continue to introduce and educate faculty on using the Guided Frameworks and track its impact. We are conducting interviews with faculty, monitoring the number of lectures updated, and types of updates made. Peer evaluation and the impact on learning will be measured.

Conclusions: Faculty are piloting the template for delivery of their lectures this spring. We are anticipating improvement in the delivery of content and more opportunities for greater student engagement. Faculty who adapt their content into the frameworks will be providing students with more choices over how they are learning.

Take-home messages: Providing guided frameworks for faculty will help develop and facilitate the delivery of a student-centered learning curriculum.

5DD/17
Medical students' attitudes towards the addictions

Kenneth Mullen (University of Glasgow, School of Medicine, Glasgow, United Kingdom)

Iain Smith (University of Glasgow, School of Medicine, Glasgow, United Kingdom)

Background: The need for medical students to engage with patients with addictive problems is projected to increase in coming years. There will also be a concomitant greater emphasis on community-based learning. The present study assessed the impact of a community based teaching initiative, the Student Selected Component (SSC) Lay and Professional Perspectives on the Addictions, on students' attitudes to these groups.

Summary of work: The SSC is assessed by a final student report which includes a self-reflective section. The free text data from this section of 28 qualitative reports over 7 years was analysed using content analysis.

Summary of results: Students were clear they believed the experience of the SSC had increased their understanding of both the psychological and social complexity related to the addictions and the role of medicine within this.

Conclusions: We discovered that the SSC Lay and Professional Perspectives on the Addictions not only gave students first-hand experience of those suffering from and treating addictive problems, but also had a positive effect on their attitude towards this group.

Take-home message: It is possible to positively influence medical students' attitudes towards these stigmatised groups; it is therefore important that we continue to enhance opportunities for learning about the health and social impact of the addictions throughout the medical curriculum.

5EE Posters: Reflection and Clinical Reasoning
Location: Terrace 1, PCC

5EE/1
Script Concordance Technique as a Teaching Strategy for Clinical Reasoning Skill in Management of Common Pediatric Respiratory Problems

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Background: Clinical reasoning is the foundation of professional clinical practice and iterative process involving hypothesis generation and testing. The medical student encounters problems in these processes. Can the script concordance technique account for this? The objective of this study is to compare clinical reasoning skill in teaching with script concordance technique to case based lecture.
Summary of work: In 2012 academic year, thirty-one final year medical students were randomized to instruct about management of common pediatric respiratory problems through either script concordance technique or case based lecture. Both groups contained four cases of clinical scenarios where the information provided was insufficient to reach a decision and had to discuss in the interactive manner. In script-concordance group, the students were given a number of items comprising a lead-in that provided a hypothesis, followed by an additional piece of information to evaluate the likelihood that the proposed hypothesis was correct. Constructed response question (CRQ) of those four scenarios were assessed at the end of five-week rotation and compared by unpaired t-test.
Summary of results: Sixteen and fifteen final year medical students were assigned to script concordance and case based lecture group respectively with three to four students in each rotation. Both groups had no significant difference in CRQ scores (67.92% and 60.47%) but script concordance group had higher scores in hypothesis testing questions significantly (69.95% and 57.83%; p=.01).
Conclusions: Script concordance technique was an effective strategy for the development of hypothesis testing skill which need analytic rather than pattern recognition.
Take-home messages: Effective clinical reasoning can develop from script concordance strategy.

5EE/2
Script concordance test in assessing professionalism reasoning for medical students

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Background: Script concordance test (SCT) is an assessment tool for an ill-defined problem. The capacity to reason in this context is the hallmark of professional competence. There are also many authentic situations with uncertainty regarding ethics and professionalism that SCT is likely used to teach and assess medical students. Objective: To develop an assessment method of reasoning in the context of ethics and professionalism for students using script concordance approach.
Summary of work: There were 38 fifth-year medical students invited to be assessed. Ten authentic situations described in vignettes with 30 items for reasoning and decision making in professionalism were developed with specific format of SCT. Five-point Likert scale was made. The scoring method was performed using 7 multidisciplinary experts. Content validity using index of congruence (IOC >/=0.5) and reliability Cronbach's alpha were performed.
Summary of results: The vignettes related to respect, accountability, altruism, ethics and legal understanding, communication, knowledge, humanism and cultural competence. Most IOC was 1 (0.67-1). The reliability was 0.98. The students' average score was 53.58% (36.67-73.60).
Conclusions: The feasibility, validity and reliability of SCT for assessment of professionalism reasoning can be conducted. Vignette can be constructed like MCQ especially developed from authentic situations.
Take-home messages: SCT is a method for reasoning assessment in uncertainty which is not only in aspect of treatment but also in professionalism performance. As a suggestion, it could be applied as teaching tools and progress test.

5EE/3
Reliability and validity of an assessment tool for clinical reasoning based on conceptual mapping in family medicine

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Background: A key element of medical competence is problem solving. Previous work has shown that doctors use inductive reasoning to progress from facts to hypotheses and deductive reasoning to move from hypotheses to the gathering of confirmatory information. An individual assessment tool has been designed to quantify the use of inductive and deductive procedures within clinical reasoning. This tool has been validated in pregradual medical students. The aim of this study was to explore the feasibility and reliability of this tool in family medicine residents.
Summary of work: The study included three groups of four participants. These comprised groups of residents in Years 1 and 3 and a group of experimented

physicians. Participants were asked to solve five clinical problems by thinking aloud. The thinking expressed aloud was immediately transcribed into concept maps by one or two 'writers' trained to distinguish inductive and deductive links. Reliability was assessed by estimating the inter-writer correlation. The calculated rate of inductive reasoning, the richness score and the rate of exhaustiveness of reasoning were compared according to the level of expertise of the individual and the type of clinical problem.

Summary of results: The total number of maps drawn amounted to 60. A significant positive correlation was found between writers for all the scores (R = 0.52–0.95). Richness scores and rates of exhaustiveness of reasoning did not differ according to expertise level. The number of inductive links were higher in physicians (16.4 +/- 6.8 vs. 12.6 +/- 5.3 for year 1 and 13.4 +/- 5.4for year 3, p=0.05). The rate of inductive reasoning varied as expected according to the nature of the clinical problem and tend to be higher in expert physicians (65% versus 56%, p=0.08).

Conclusions: This new method showed a good reliability and may be a promising tool for the assessment of clinical reasoning in family medicine residents.

5EE/4

A scientific and humanistic look into the clinical and ethical reasoning of the 'physician of persons'

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Background: This exciting and unaccomplished topic frequently occupies us clinicians and medical teachers from around the world. In almost all scenarios where the medical practice occurs, clinical and ethical competencies are also taught, in order to model competent physicians in the healthcare of people.

Summary of work: Purpose: to discuss the professional competency of undergraduate students, from an integral scientific and humanistic perspective, and to examine the logic underlying in the understanding of this issue, as well as the main teaching-learning/assessment methodologies involved.

Summary of results: The conceptual aspect was analyzed using a wide bibliography, authors and educative contexts. Thus I found many terms, some of them synonyms, others interchangeable or complementary (critical-thinking, physiological-thinking, clinical-reasoning, clinical-judgment, ethical-reasoning, professionalism...) Then, the most relevant teaching-learning and assessment methodologies to promote clinical and ethical reasoning of undergraduate students turned out to be difficult to standardize.

Conclusions: My proposal is to consider the critical thinking as a continuous historic-cultural activity during the whole process of professional competency, that is to say, the main capability. So, clinical reasoning integrated to ethical reasoning (critical-thinking, systemic-approach + physiological-thinking /physiopathology/ medical sciences + humanities), model the 'physician of persons': a doctor who cares people's health inspired on universal ethical principles.

Take-home messages: The competent 'physician of persons' can be modeled, since the beginning of the career and beyond, by medical teachers who have understood most meanings and master at least one of the possible methodologies.

5EE/5

Development of Small-Group Learning (SGL) at RUSM to deliver specific content on competencies and promote history-taking skills

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Background: At Ross University School of Medicine (RUSM), formerly, students would work through the vignettes of a PBL case on the whiteboard using the following column headings: Data, Analysis, Hypothesis, and Learning Issues a time-consuming repetitive exercise.   PBL facilitators identified this as a limiting factor and reported this as a source of student frustration. In May 2012 the PBL program was renamed Small Group Learning (SGL) to reflect the directive nature of the process that had developed at RUSM.

Summary of work: In May 2012 the SGL proces incorporated aspects of medical history taking . This included the subdivision of the data column into chief complaint, history of present illness, past medical history, medications, family history, social history, review of systems, physical exam and other data. A new column called "problem list" was also added.

Summary of results: Anecdotal reports from SGL facilitators indicate that this method preferred by students as this format seems more clinical and seems more relevant to what they will be doing as doctors.

Conclusions: The aims of this new process are to improve clinical reasoning as students place data where it belongs in the interview process, and to improve students' history taking skills. Clinical reasoning is further enhanced by students developing a problem list from the data given.

Take-home messages: Further research is needed to gather student and faculty feedback on the new SGL process. We are planning to survey facilitators to document these results.

5EE/6
The development of the clinical reasoning construct in undergraduate students in an internal medicine clerkship program

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Saeed Hamid (Aga Khan University, Medicine, Karachi, Pakistan)

Background: In medical education, the curriculum is continually monitored to ensure quality standards. Often overlooked in Pakistan though are robust analysis of the assessments that give meaningful interpretation of the results. This study was done to explore the construct validity related evidence of clinical reasoning in the multi-method assessments used for assessing student performance in the undergraduate medicine clerkship program at Aga Khan University (AKU).
Summary of work: The assessments scores of students 167 students were used, from two consecutive cohorts. Exploratory and confirmatory factor analysis was conducted to identify underlying constructs assessed by clerkship assessments; regression for direction of causality; and a multi-trait multi-method matrix for construct validity.
Summary of results: The reliability of the assessment instruments used were moderate to high (0.74 - 0.94). Factor analysis isolated an attribute which was identified as clinical reasoning ability. Construct validity was determined by applying the Campbell and Fiscke criteria to a multi-trait multi-method matrix.
Conclusions: The AKU spiral curriculum, allows students first learn about the basic science information about clinical presentation in PBL tutorials. This primes learners for the clinical years and develops hypothetico-deductive reasoning. During third year they start interacting with patients and through experiences with real cases, this knowledge begins to transform into cognitive structures called illness scripts. During the clinical years clinical teaching ensures that Bowen's areas of common clinical reasoning deficiencies are addressed.
Take-home messages: The undergraduate assessment of clinical competence conducted by the department of medicine at AKU predominantly assesses students' clinical reasoning ability and this trait is essential to certify physicians.

5EE/7
SNAPPS case presentations in an internal medicine ambulatory care setting in a Thai medical school

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Terry Wolpaw (Penn State College of Medicine, Educational Affairs, Hershey, United States)

Background: SNAPPS is a learner-centered approach to clinical case presentations that has been shown in American studies to facilitate the expression of clinical reasoning and uncertainties in the family medicine outpatient setting. The purpose of this study was to replicate the American study for an Asian medical school.
Summary of work: We conducted a historical pre-test and experimental post-test, comparison trial, comparing the SNAPPS technique to the usual-and-customary method of case presentations (Usual) for fifth-year (M5) medical students in an ambulatory internal medicine clerkship rotation at Khon Kaen University, Thailand.
Summary of results: SNAPPS users (90 case presentations), compared to Usual group (93 presentations), identified more problems (2.39 vs 1.22), had more diagnoses in their differentials (1.81 vs 1.42) and more differential justifications (0.90 vs 0.78), student-initiated diagnosis discussion (76.7% vs 59.1%) and student-initiated reading assignments (6.67% vs 0%). There was no maturation effect for the M5 students using Usual presentations (71 presentations).
Conclusions: These results are similar to the American results and show that the use of the SNAPPS technique helped improve the expression of clinical reasoning for Thai medical students during an internal medicine ambulatory care rotations.
Take-home messages: SNAPPS technique is the helping tool for clinical reasoning teaching in internal medicine ambulatory care rotations in Thailand.

5EE/8
Reflective practice in Medicine: A comparison of the experience of participation in Balint groups for medical students and doctors in training

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Background: Bristol medical students do not experience Balint groups within their curriculum. By contrast, doctors training in Psychiatry in the region are expected to attend a Balint group. Evidence from the long running UCL Medical Student Psychotherapy Scheme supports the effectiveness of psychodynamic approaches in teaching students in the UK; similar student Balint groups have been used in numerous countries.
Summary of work: This work provides a comparison of students' first experience of participation in a Balint group with doctors' experiences. Two Balint group leaders ran parallel doctor and student groups. Process notes from five sessions of each group were analysed for themes, and compared. Participants completed a questionnaire to identify elements of their experience.
Summary of results: Both groups had a comparable attendance; students were enthusiastic, and able to participate in the groups in a similar manner to the doctors. Common themes emerged from both the student and doctor groups. Differences were identified in terms of the challenges of leading the student group versus the doctor group. Group leaders found the experience of leading two different groups enriched the process.
Conclusions: Participation in Balint groups confers some similar benefits for students and doctors. Mirroring the doctors' experience, students found the opportunity to participate in reflective practice within a peer group to be valuable.
Take-home messages: Our findings are consistent with those of the UCL scheme. Participation can enhance the clinical placement for students. Wider installation of Balint group schemes for students throughout their clinical years would be beneficial.

5EE/9
Structured reflection while practicing with clinical cases may increase cognitive effort

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Background: Structured reflection while practicing with clinical cases has been shown to foster medical students' diagnostic competence in the long term but hindered performance in immediate test, which may be due to generation of increased cognitive load. This study compared cognitive load and diagnostic accuracy in 3 experimental conditions: structured reflection, generating immediate and differential diagnosis.
Summary of work: The study consisted of learning phase, immediate test, and one-week later test. Two different cases of jaundice and two of chest pain were diagnosed in each phase. Participants were 83 4th-year medical students. In the learning phase, they were randomly assigned to one of three groups: immediate decision (read the case and gave an immediate diagnosis), differential diagnosis (give alternative diagnoses before choosing the most likely one), structured reflection (listing confirmatory and contradictory evidence for alternative diagnoses before deciding the most likely one). In the immediate and delayed phases, all students were requested to simply diagnose the new sets of cases. Cognitive load was measured in each phase by using a 9-point mental effort rating scale.
Summary of results: The SR group apparently presented a higher cognitive load in learning phase (p=0.08) with a higher diagnostic accuracy in immediate phase (p=0.06). An increase in diagnostic accuracy was not found in the delayed phase, which seemed to be due to upheavals in the school, which may have hindered the delayed test.
Conclusions: Although borderline, the results suggested that reflection increased the cognitive effort and contributed indeed to higher learning performance soon after intervention.
Take-home messages: Structured reflection may induce germane cognitive load

5EE/10
Drawing: a new tool for reflection in undergraduate medical students

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Background: Reflection is an integral part of being a good doctor. It is encouraged, and assessed, at many medical schools. However students often dislike reflection. Underlying reasons for this are complex, but may be due to a mismatch between skills needed to reflect usefully, e.g. openness, and skills encouraged by methods used to capture reflection, e.g. essay writing. Our hypothesis was that a more creative 'right-brained' approach would make reflection more powerful, efficient and fun.
Summary of work: Voluntary 90 minute workshops were arranged for interested undergraduate medical students. First, a series of warm up activities 'got students in the mood' and helped them focus on significant events in the year so far. Students were then asked to produce, and present, a piece of art representing a difficult aspect of their life as medical students. Explanations were recorded digitally, then

transcribed. All artwork was photographed. Transcripts and artwork were thematically analysed using a constant comparison method. Pre- and post-session questionnaires were administered.
Summary of results: Students (n=23) found the workshop positive ("therapeutic") and afterwards were more likely to agree with the statement 'I enjoy reflecting' (p<0.05). Emerging themes included time, uncertainty, blood, balance and family. We were struck by the depth, and beauty, of some of their work (see: www.drawing4reflection.info).
Conclusions: Students enjoyed, and engaged with, the drawing for reflection workshop, and expressing difficulties graphically helped many make better sense of their experiences.
Take-home messages: Guided drawing stimulates personal reflection quickly and effectively, and may improve students' attitude to reflection in general.

5EE/11
ePortfolios in undergraduate medical education: does engagement predict performance?

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Background: Eportfolios are a core component of postgraduate medical education and training. Increasingly, undergraduates mirror postgraduates in the use of ePortfolios. ePortfolio assessment is usually a combination of grading individual components and a measure of engagement with the ePortfolio through setting a minimum content list. Anecdotally it has been claimed that engagement with an ePortfolio is a predictor for other outcomes such as performance in end of year written and OSCE examinations.
Summary of work: We created a matrix to score ePortfolio engagement, including measures of students' use of compulsory and non-compulsory elements of the ePortfolio, and the students' organization of contents. We assessed 90 undergraduate ePortfolios and compared engagement scores to end of year summative assessment scores.
Summary of results: Mean engagement score was 5.4±1.75 (max 14). No correlation was found between engagement score and overall summative assessment results (r=0.11, p=0.31), or individual components of the engagement matrix.
Conclusions: As ePortfolio use increases in undergraduate medical education, caution must be exercised to ensure they are not used as surrogates of other outcomes without a robust evidence-base. The ePortfolio project is a collaboration between several medical schools. We plan to extend this study to

investigate whether different types of engagement in other schools predicts outcomes in other assessments.
Take-home messages: In this study there was no correlation between engagement with an ePortfolio as measured by a novel engagement score, and end of year summative assessment performance. A focus on maximising the benefit students can get from ePortfolio use in relation to formative assessment and lifelong learning skills is advisable.

5EE/12
A reflective logbook in a clinical undergraduate emergency medicine course

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Background: Reflection in medical education as a means to prepare students for the complexity of medical practice is gaining increasing support. A variety of approaches are employed today, but evidence is scarce about how to best teach and encourage reflection in medical education. In particular, how to effectively facilitate reflection in daily practice at students' clinical rotations is largely unexplored.
Summary of work: We developed a paper-based semi-structured reflective logbook for students in a third year clinical emergency medicine course. The logbook included instructions and information on reflection and three weeks of daily "rounds" where assignments were ordered after increasing complexity. The last assignment involved writing an essay by expanding on reflections accumulated during the daily work with the logbook. To facilitate workability, the logbook was printed in a pocket format. Students volunteered to work with the logbook during a three week rotation at an emergency medicine unit. The logbooks and the essays were collected after completion of the course. Student opinions were evaluated by a questionnaire as well as by focus group interviews.
Summary of results: Work in progress. Results expected by May 2013.
Conclusions: Work in progress. Results expected by May 2013.
Take-home messages: Work in progress. Results expected by May 2013.

5EE/13
Taking the learning beyond the individual

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Background: This new post graduate inter-professional Diabetes Care and Education Master Degree programme designed by the University of Dundee & NHS Tayside, in partnership with the Dasman Diabetes Institute, Kuwait enables those working in the field of diabetes care to gain sound evidence-based knowledge of the clinical, education and organisational components associated with modern diabetes care. A key element within each module is to develop the student's reflective ability. Students are expected to reflect on practice and demonstrate their learning as part of each module assessment.

Summary of work: A case study using focus group interviews and documentary data examination was carried out to explore students' perceptions of the value of reflection within a post graduate degree programme in Kuwait. The purpose of this research was to explore its application to practice through the implementation of a Masters post-graduate programme and realise how innovative teaching interventions inform change in professional practice.

Summary of results: Preliminary findings suggest that feedback from students is positive. Through organised, structured and assessed reflective learning the modules within the programme are valued. The learning provides useful information and support to the student, highlighting the role which reflection plays to enhance personal and professional development; the value of educational theory; continuing professional development; collaboration; enhancing patient education and practice.

Conclusions: Students in Kuwait value the opportunity to enhance their learning.

Take-home messages: One of the key roles this education provides is for students to develop personally and professionally.

5EE/14
Association of Critical Thinking Ability and Mental Health in Medical Students

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Background: The cultivation of critical thinking ability in medical education has been emphasized lately. The aim of this study was to examine the relationship between critical thinking ability and mental health status in medical students.

Summary of work: Data were collected from first and second year medical students (n=183) from Yang-Ming University in Taipei, Taiwan between 2011 and 2012 using the Chinese Version of the California Critical Thinking Disposition Inventory (CTDI-CV). A composite CTDI score and domain subscale scores were calculated for each student. All participants also completed surveys that included questions concerning family background, stress, and various assessments of health, as measured by the CHQ (Chinese version of GHQ) and the CESD.

Summary of results: The highest mean score was on the Open-Mindedness subscale and the lowest on the Reflective Thinking subscale among both first and second year students. Mother's education level, father's education level, low overall as well as depression subscale CHQ scores had significant positive correlations with the CTDI score, as did the cumulative GPAs.

Conclusions: The correlation between critical thinking ability and mental health suggests that enhancing mental health ability could be also a way to improve critical thinking ability in medical students. The low Reflective Thinking subscores found may be a result of current teaching strategies and might indicate a need for more student-active learning models.

Take-home messages: The correlation between critical thinking ability and mental health suggests that enhancing mental health ability could be also a way to improve critical thinking ability in medical students. The low Reflective Thinking subscores found may be a result of current teaching strategies and might indicate a need for more student-active learning models.

5EE/15
Critical thinking of undergraduates at the beginning and the end of training: a comparative study

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Background: Human life is interlaced with thinking. Critical thinking is reflective reasoning about beliefs and actions. During the process of anesthesia, it may improve flexibility, decision making and problem solving authority. Many studies have shown considerable effects of training factors and their impacts on improving critical thinking. This study was designed to compare the critical thinking of students at the beginning and the end of training course in anesthesia

undergraduate students in Kashan University of Medical Sciences.

Summary of work: During a descriptive study, California questionnaire was distributed among 43 students of anesthesia, 27 freshman students and 16 at the end of the course. The questionnaire was included the 5 components of critical thinking: analysis, evaluation, inference, deductive reasoning, and inductive reasoning. ANOVA was used to compare mean scores of critical thinking components.

Summary of results: Of the 43 students, 27 were female and 16 male. Generally, there were no significant difference between the mean scores of two groups regarding four components of critical thinking, and just in "inductive reasoning", students at the end of training had significantly more scores than freshman (P=0.055). The scores of female students were significantly more than male in this component. (P=0.029)

Conclusions: Higher scores in "Inductive Reasoning" in the students at the end of their course compared to new students may be due to improve justified   and ma thematic logic after passing of theoretical and practical courses in the university. Authorities should have the effective plans to improve the other components of critical thinking in the students.

Take-home messages: Authorities should have effective plans to improve the other components of critical thinking in the students.

5FF ePosters: Basic Sciences
Location: North Hall, PCC

5FF/1
An investigation of the relationship between the laparoscopic box trainer score and timed practical anatomy score of pre-clinical medical students

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Background: There has been shown to be a moderate relationship between general clinical skill ability and the level of competence in comprehending anatomy in undergraduate medical students. This study therefore, aims to determine the relationship between laparoscopic box trainer performance (measuring visuospatial awareness and dexterity ability) and timed practical anatomy examination score of medical students. Mental cognition is vital in both the comprehension of the physical aspect of understanding anatomy and the manipulation of laparoscopic tools in a simulated environment.
Summary of work: Sixty pre-clinical medical students at Durham University will be quantitatively assessed using a laparoscopic box trainer. These scores will then compared against their corresponding timed-practical anatomy examination results to ascertain whether there is a link.
Summary of results: Results will be established discerning whether students with a high laparoscopic box trainer score also possess a high timed-practical anatomy examination result. Data has been collected and is currently in the process of being analysed.
Conclusions: Evidence of a student's visuospatial awareness and dexterity ability can be used as a predictor to determine whether they will be successful in comprehending anatomical structures.
Take-home messages: This study could add to the evidence base of basic skills required for the effective comprehension of gross anatomy and help guide teaching decisions in the future.

5FF/2
The "Elementary Kidney Ultrasound Teaching Programme" for medical students -- experience of the largest medical centre of Taiwan

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Background: A well-designed teaching programme can help students to integrate the basic and clinical medical knowledge, and apply the basic knowledge into clinical skills. The "Elementary Kidney Ultrasound Teaching Programme" (EKUTP) is designed for the above purposes.
Summary of work: EKUTP contains pre-/post- multi-choice questionnaire (MCQ) of medical knowledge of kidney field, pre-/post-evaluation of clinical skill – the practice of kidney ultrasound (KU), lecture & operation demonstration of KU, and satisfaction questionnaire for the teaching programme. Medical students who completed the 90-minute teaching programme from October, 2012 to February, 2013 were enrolled. The evaluation forms were designed for KU practicing performance evaluation. The paired and independent t tests were applied for analyzing the results.
Summary of results: Eighty six medical students (34 5th grade, 52 7th grade) were enrolled. In medical knowledge field, 40 students (46%) failed in KU interpretation in pre-MCQ. In clinical skill field, 36 students (41%) failed to place the kidney image in the middle of the ultrasound screen in pre-evaluation. Comparing with 5th grade students, 7th grade students had better pre-/post-MCQ score (especially in KU interpretation) and similar performance in practicing performance. All students had significant improvement in both medical knowledge and clinical skill fields after teaching, and responded high level of satisfaction.
Conclusions: The EKUTP is a useful for achieving the goals of enhancing student's performance of medical knowledge of kidney field and clinical skills of KU.
Take-home messages: A well designed teaching programme, including pre-/post-evaluation, lecture and operation demonstration, will show student's weak points, improve their performance, and assist their learning.

5FF/3
10-years' experience with "Anatomy and Imaging" – from an elective to a curricular course

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Background: Recent advances in radiology and the widespread availability of imaging facilities require medical students to have thorough anatomical knowledge and to be able to apply it to a variety of medical imaging techniques. At the same time the methods of teaching gross anatomy are under debate (including the use of cadavers versus/in addition to the use of medical imaging).
Summary of work: In 2001, we established the elective course "Anatomy and Imaging" in undergraduate medical education as an interdisciplinary project of the Departments of Anatomy and Radiology. Radioanatomy (including CT) and ultrasound anatomy is taught by tutors in small groups (5-10 students), supervised by anatomists and radiologists. There are 32 lessons and a final examination. Anonymous evaluation has been performed continuously. Here we want to share our 10-years' experience with "Anatomy and Imaging".
Summary of results: 618 (306 females) second-year-students took part in the course between 2001 and 2012. Evaluation return rate was 90.1%. The general approval rate was 1.33 (scale from 1 = excellent to 5 = poor). Highest marks were given for clinical relevance (1.17). Thus, the Medical Faculty of Muenster decided to integrate "Anatomy and Imaging" into the undergraduate curriculum in addition to the dissection course from 2013.
Conclusions: Integration of imaging in undergraduate medical education is highly accepted. Clinical relevance is evident.
Take-home messages: Beside the dissection course medical imaging must become an integral part of teaching gross anatomy.

5FF/4
Physiology teaching and learning in a large, diverse, multi-disciplinary first semester service module: an analysis of the success rates of first year students

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Background: Our research has shown that Health Science (HS) students at UKZN perform better in their professional as compared to their physiology modules. Pass rates of physiology modules have steadily declined, particularly in the first year basic physiology module taken in the first semester. Although a risk monitoring system is in place, its activation is dependent on completion of the module. Struggling students thus need to be identified earlier in the semester.
Summary of work: Using biographical data, correlation analyses were undertaken of various performance indicators based on qualification, gender, home language and admission points etc.
Summary of results: The 2011 class size was 214 students, of whom 67% were female, 53% were English first language speakers, and comprised sport science (57%), dental therapy and oral health (18%), speech language pathology (13%) and audiology (12%) students. Pass rates approximated 70% for HS students of the latter three disciplines, in contrast with that of sport science students (42%). Class admission points (based on the National School Certificate) averaged 33 ± 3.6. These did not correlate well with the module mark for the whole class (r = 0.41) nor when analyzed for qualification, gender and home language. In contrast, test 1 and the final examination results correlated well (r = 0.76). Interestingly, differences were noted between language groups.
Conclusions: Student performance in the first class test is a valuable tool to identify students at risk.
Take-home messages: Preferably, the appropriate testing should be held as early as possible.

5FF/5
Musculoskeletal ultrasound module increases medical students' knowledge of gross anatomy

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Background: Medical school curricula currently provide less time for gross anatomy and limited and late exposure to ultrasound. The study evaluated the feasibility and impact of an introductory module on musculoskeletal ultrasound imaging to supplement existing gross anatomy teaching to first year medical students
Summary of work: A one-hour module was developed for students who had completed the existing gross anatomy instruction on upper extremity anatomy including dissection. The module included terminology, basic physics, and scanning techniques, followed by a real-time ultrasound demonstration on a volunteer's arm emphasizing ultrasound's anatomic and dynamic capabilities, concluding with a presentation about the appearance of selected upper extremity musculoskeletal pathologies. Assessment included pre and post educational intervention of students' knowledge and perception of the module's impact. Participation was voluntary and anonymous.
Summary of results: One hundred ten students (65%) participated. Students demonstrated an increase in basic knowledge of ultrasound (p<.01). They indicated the module was most useful in learning anatomic

function (72%) and enhancing their appreciation of gross anatomy (65%) but were less convinced of their own ability to use ultrasound as a tool for learning (49%) or to understand specific structures (39%).

Conclusions: Anatomic and radiology educators both learned to stress surface landmarks to encourage student use of ultrasound. This study confirmed the feasibility and acceptability of an ultrasound teaching module to enhance first year medical students' interest in anatomy.

Take-home messages: The study identifies strengths and limitations of ultrasound as a teaching and clinical modality and illuminates techniques that educators might use to reinforce medical students' understanding of functional anatomy.

5FF/6
The cadaver as the first clinical encounter: emotional impact in first year medical students

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Background: Anatomy and dissection play an important role in developing attitudes that apply to the doctor-patient relationship. In this scope, this research was endeavoured in order to assess perceptions of medical students towards the cadaver prossections as their first clinical encounter.

Summary of work: 131 first year medical students from the Faculty of Medicine of the University of Porto participated in a longitudinal study with three moments of assessment: (M1) beginning of the first semester - before they have had contact with anatomy classes and cadavers; (M2) beginning of the second semester and (M3) beginning of second year. All completed Appraisal of Life Events Scale (ALE) and a structured survey with open questions.

Summary of results: ALE results reveal higher mean scores in subscale challenge throughout the study [M1: 22.83, M2: 21.25 and M3: 20.17, $p<0.001$], and lower scores on the subscales threat [M1: 12.35, M2: 5.89 and M3: 8.95, $p<0.001$] and lost [M1: 3.95, M2: 2.49 and M3: 4.02, $p<0.001$]. Students considered the cadaver as a learning tool (56%), as the first contact with human body (37.7%) and as a real patient (21.2%); these perceptions remained at long-term, with the exception of the first that decreased.

Conclusions: The medical students report cadaver dissection as a positive significant life event before and after experiencing this exposure and only 1/5 consider the cadaver as a real patient.

Take-home messages: Efforts are needed to improve the perceptions of medical students towards the cadaver prossections as their first clinical encounter.

5FF/7
Introducing the Objective Standardized Practical Examination (OSPE) - a novel anatomy and clinical based exam

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Background: Medical school assessment is based on the concept of developing an examination that is both able to predict clinical performance and is practically feasible. Standardized tests in medical school usually consist of only a few accepted formats and are becoming less focused on anatomy.

Summary of work: We developed a novel anatomy and clinical based Objective Standardized Practical Examination (OSPE) for year 2 students. Based upon core curriculum objectives, it was compared to the gold standard year 2 comprehensive examination. The OSPE was set up as pre-designed stations in the anatomy lab. Stations were comprised of a clinical vignette followed by three independent questions: 1- anatomy question using anatomically labelled specimens or images, and 2- clinically related questions.

Summary of results: 186 and 168 second year students in successive years (2011-12) participated. Comparisons between the OSPE and comprehensive tests revealed moderate correlation with a Pearson's correlation of 0.436 and 0.402 for 2011 and 2012 respectively. This corresponded to a coefficient of determination of 0.190 and 0.162 respectively.

Conclusions: The OSPE is a novel method for examining students based upon anatomy principles. There appears to be a 15-20% knowledge correlation between the comprehensive exam and the OSPE, allowing for the necessary translation of theoretical concepts into clinical scenarios but also ensuring there is little redundancy in testing strategies.

Take-home messages: The clinical focus of the OSPE bridges the gap between the theoretical knowledge acquired in the first two years of medical school and clinical duties starting in year 3.

5FF/8
Teaching clinically relevant basic science knowledge

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Background: In the traditional curriculum of the Charité (Berlin) like in all traditional curricula in Germany, basic sciences are taught according to the 'H'-model during the two preclinical years. This is believed to lay ground for a scientific understanding of ailments and to foster abilities for clinical reasoning and decision making during the clinical years.
Summary of work: With guidance of faculty specialists we developed a structured questionnaire with 44 open questions covering basic science facts about liver, heart, kidney, lung and blood - thought to be clinically relevant and essential basic science knowledge.
Summary of results: 98 students (5th year) participated in this test. All of the questions were rated to be comprehensible and 35 were classified as clinical meaningful. The expected essential knowledge could be reproduced in less than 48%.
Conclusions: It is impossible for the preclinical students to assess the clinical relevance of all the preclinical information. They cannot decide what is essential 'core knowledge' and what is peripheral 'nice to know' – the teachers don't provide guidance. Instruction of basic science facts should guarantee that every student understands and knows a core of essential knowledge by heart.
Take-home messages: Less but clinically relevant knowledge is more than encyclopedic matters of no importance.

5FF/9
Patient exposure in the basic science classroom enhances clinical decision-making

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Background: A major challenge for medical students is making the leap from the basic sciences to clinical practice through the course of medical school. We propose that real patients' histories with assignments focused on clinical decision-making during basic science courses will better prepare students for this challenge.
Summary of work: Three patients with different pathologies described their history and presentation without revealing their diagnosis. Students were required to submit a differential diagnosis in writing, and then they were able to ask questions to arrive at the correct diagnosis. Students were surveyed on the efficacy of patient-based learning.
Summary of results: Average student scores on the differential diagnosis assignments significantly improved 32% during the course. From the survey, 72% of students felt that patient encounters should be included in the pathology course next year. 74% felt that the differential diagnosis assignments helped them develop clinical decision-making skills. 73% felt that the experience helped them know what questions to ask patients. 86% felt that they obtained a better understanding of patients' social and emotional challenges. 68% felt that they have better insight into what their clinical experience will be like.
Conclusions: Having students work through the process of differential diagnosis formulation when encountering a real patient and their clinical presentation improved clinical decision-making skills during a basic science pathology course.
Take-home messages: Real patient encounters in the basic science classroom coupled with assignments aimed at clinical decision-making will improve clinical skills and help to unite the basic sciences with clinical practice.

5FF/10
The positive side effects of early authentic experience

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Background: According to literature early patient contact has positive effects on the professional development of medical students. At the Medical University of Vienna a 30-hours course in a modern long-term care hospital is mandatory for all 740 freshmen of each year. The learning goals of the course are the development of professional attitudes toward care recipients and toward non-medical health professionals. This study assesses the intended and unintended learning outcomes of the course, with main focus on the additional positive and negative side effects.

Summary of work: Obligatory randomly drawn reflection reports of n = 52 students were analysed with regard to the question, what intended and unintended learning outcomes the students report. A qualitative content analysis was performed.

Summary of results: Seven main categories emerged from inductive analysis: Experience in interaction with care recipients; Recognizing important factors for successful interaction with care recipients; Understanding the perspectives and needs of care recipients; Reflection of one's own capabilities; Appreciation of non-medical health professionals' work; Increased understanding of different diseases; Others.

Conclusions: Additional unintended learning outcomes have been identified, mainly in the categories "Reflection of one's own capabilities", "Increased understanding of different diseases" and "Others". Besides the intended learning outcomes there are positive side effects of early authentic experience. No negative effects could be identified. The non-research-led purpose of the analysed reports and other limitations of the study will be discussed.

Take-home messages: Keep your mind on side effects of early authentic experience for controlling the actual learning outcomes.

5FF/11
Clinical Decision Making Educator Tool in a Preclinical Course

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Joseph Grande (Mayo Clinic, Lab Medicine and Pathology, Rochester, United States)

Background: The aim of preclinical medical education is to provide a clinical decision making framework. Students gain differential diagnosis skills that often are graded without a standard rubric. Without guidelines, difficulty remains about whether or not educational interventions improve differential diagnosis skills.

Summary of work: Graders developed a standardized differential diagnosis grid with a 0, 1 or 2 point grading system. The grid was posted on a live Google document where graders could see what others had given and give feedback about any discrepancies. This allowed graders to gain consensus on answers and compare personal opinions.

Summary of results: 75% of grading participants always referenced the live document before grading assignments. 75% of graders occasionally questioned other graders on their points given which allowed for discussion and ultimate resolution and consensus. 75% of graders agree or strongly agree that the live document was a useful resource for conversing with others regarding the assignment. 71.4% strongly agreed that the document worked better with their schedule than a traditional meeting. 62.5% thought a traditional

meeting would have been impractical for grading assignments. 62.5% agreed that their fund of medical knowledge increased as a result of referencing the live document.

Conclusions: Graders used the live document on a regular basis and found it to be a helpful learning resource and a time-saving intervention.

Take-home message: Live document grading and point-based rubrics facilitate objective measurements of curriculum outcomes and improves learning for students and graders

5FF/12
Integration of clinical cases into preclinical teaching: simulated cases are perceived to be as effective as theoretical case-based seminars

Rebecca Rewbury *(University of Oxford, Medicine, New College, Holywell Street, Oxford OX1 3BN, United Kingdom)*
Simon Gomberg (The University of Oxford, Medicine, Oxford, United Kingdom)
Shirley Yick (The University of Oxford, Medicine, Oxford, United Kingdom)
Fiona Rhodes (The University of Oxford, Medicine, Oxford, United Kingdom)
Thomas Hine (The University of Oxford, Medicine, Oxford, United Kingdom)

Background: The traditional structure of Oxford and Cambridge medical degrees focuses on biomedical science in the first three years. The Oxbridge Clinical Skills Course for Preclinical Students (OPS) aims to integrate basic science with clinical skills, with particular emphasis on demonstrating the relevance of preclinical knowledge. Previous work has shown that case-based teaching effectively achieves this aim, whereas practical sessions such as suturing are more enjoyable but incorporate preclinical science to a lesser extent.

Summary of work: This study aimed to investigate whether a more interactive and hands-on teaching method in the form of simulated emergency scenarios with manikins and dummy medical equipment could be as effective as theoretical methods. 60 students completed 5 sessions: suturing, phlebotomy, cranial nerve examination, differential diagnosis and a new station entitled 'emergency scenarios'. Data was collected using pre- and post-course questionnaires.

Summary of results: Prior to the course, students anticipated that theoretical teaching (formulating a differential diagnosis) would better demonstrate the clinical relevance of their preclinical science compared to practical teaching (simulated emergency scenarios) (n=60, p<0.01). However, following completion of the course, theoretical and practical teaching methods were rated equivalent in showing the relevance of preclinical science to clinical medicine.

Conclusions: Despite minimal clinical teaching, students were able to use their basic physiological and anatomical science to deal with simulated clinical scenarios in 'real time'. This hands-on interactive

teaching method was effective in highlighting the application of preclinical science to clinical medicine.

Take-home messages: Earlier introduction of practical teaching methods could be used to demonstrate the relevance of basic sciences and sustain students' enthusiasm.

5FF/13

A Novel Case-Based Research Strategy Brings Relevance to Studying Immunology and Clinical Immunology-a Case Study of Contact Dermatitis

Suzana Micova (Faculty of Medicine, University Goce Delcev, Immunology and Clinical Immunology, Stip, Macedonia)
Stojka Vasileva (Clinical Hospital Stip, Department of Gastroenterology, Stip, Macedonia)
Evica Bojadzieva (Faculty of Medicine, University Goce Delcev, Immunology and Clinical Immunology, Stip, Macedonia)
<u>Liljana Stevceva</u> (California Northstate University College of Medicine, 9700 West Taron Drive, Elk Grove, CA 95757, United States)

Background: It is important to bring relevance to immunology concepts by relating the basic science with clinical outcomes.

Summary of work: This approach was introduced to 57 students that elected Clinical Immunology course. In a group of maximum 3, students were required to shadow a medical doctor and to follow a case of immunologically mediated disease until resolution. A list of immunologically mediated diseases, letter for the medical doctor and blank form for permission to be photographed were provided at the beginning of the course. Results were measured by grading the resulting research paper that contained case description and the immunological mechanisms of the disease that was followed. This activity was optional and could bring up to 15 bonus points (10 points minimum to obtain a pass grade).

Summary of results: This activity was well received by the students. Majority of the students opted to pursue this activity (82.45%). Support was offered from the medical doctor that mentored them in the clinic and faculty at the university. Most of the research papers required at least one correction with about 6% requiring multiple corrections.

Conclusions: Case-Based Research (CBR) achieved bringing case studies early in the curriculum and it combined practical experience, teamwork and learning the basics of writing a research paper. It also brought relevance to immunological concepts as it connected them with real life diseases.

Take-home messages: CBR could be implemented in several pre-clinical courses. Students enjoy it and it is a valuable, active learning experience.

5GG ePosters: Student as Teacher
Location: North Hall, PCC

5GG/1
Approaching the OSCE- A teaching initiative for junior medical students run by senior medical students

Vruti Dattani (University College London, Medical School, London, United Kingdom)
Tanmay Kanitkar (University College London, Medical School, London, United Kingdom)
Sindhu Bhaarrati Naidu (University College London, Medical School, London, United Kingdom)
Elissa Rekhi (University College London, Medical School, London, United Kingdom)
Owain Donnelly (University College London, Medical School, London, United Kingdom)
Patrik Bachtiger (University College London, Medical School, London, United Kingdom)

Background: The recent move to integrated medical school curricula has resulted in teaching clinical skills earlier in the medical course and using Objective Structured Clinical Examinations (OSCEs) for their assessment. However, junior medical students have little exposure to this examination format and thus may feel unprepared. We devised and delivered a novel near-peer teaching initiative for first and second year medical students prior to a newly introduced formative OSCE. This comprised workshops for small groups of students taught by students in their penultimate year focusing on developing a confident, structured and professional approach to OSCE stations.
Summary of work: Students attending rated a number of parameters on a six point Likert scale from 'Very Poor' to 'Excellent'. Tutors were asked for their feedback in a similar manner.
Summary of results: 224 students attended and feedback was positive. 84% of students rated the initiative 'very good' or 'excellent' in reassuring them about the OSCE, while 89% gained confidence in approaching OSCE stations. Of the 83 tutors, 93% rated their experience as 'very good' or 'excellent' and 90% were more confident about teaching afterwards.
Conclusions: As integrated curricula become more common, senior students are well placed to use their experiences to benefit junior students. Furthermore these initiatives give senior students an opportunity to develop teaching skills essential for their future career. Our teaching initiative successfully reassured and prepared junior students for their OSCE assessment and had additional benefits for senior students teaching.
Take-home messages: As the medical curriculum changes, senior students are a valuable resource in introducing clinical skills to junior students.

5GG/2
A randomised study to explore the effect of tutor training on Objective Structured Clinical Examination (OSCE) performance in a large Peer Assisted Learning (PAL) project

Guy Rughani (University of Edinburgh, Medical School, Edinburgh, United Kingdom)
Kate Milner (University of Edinburgh, Medical School, Edinburgh, United Kingdom)
Laura Clifton (University of Edinburgh, Medical School, Edinburgh, United Kingdom)
Valerie Rae (University of Edinburgh, Medical School, Edinburgh, United Kingdom)
Adam Collins (University of Edinburgh, Medical School, Edinburgh, United Kingdom)
Amira Baharin (University of Edinburgh, Medical School, Edinburgh, United Kingdom)

Background: There is currently limited evidence on whether feedback from student tutors improves peer performance in a PAL setting. Aim: Evaluate the effect of training in generic feedback skills given to tutors on the performance of tutees in a validated mock exam station.
Summary of work: Year 4 students at Edinburgh University will run a mock OSCE for year 3 students to help them prepare for their professional exam. Each year 3 student will sit 8 stations of 5 minutes and receive 1 minute of feedback from a year 4 tutee after each station. Prior to the event, half of the tutors will be randomly allocated to attend training on how to give good feedback. This will focus on generic feedback skills. The other half will receive an advice sheet on feedback. During the PAL, half of the tutees will consistently be advised by year 4 tutors who have had training, and the other half will consistently have year 4 tutors who have not been trained. The tutees will be blind to the training status of their tutors. After 8 stations, the tutees will sit a validated mock exam station on lower back pain. All tutors will act as examiners on this station and mark according to a consultant-approved scheme. At the end we'll ask the tutees about the feedback they received from the tutors and their perceptions of its quality, investigating if there are any differences between those who had trained versus untrained tutors.
Summary of results: Awaiting study completion.
Conclusions: Awaiting study completion.
Take-home messages: Awaiting study completion.

5GG/3
Using near-peers for curriculum development in global health

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Karina McHardy (Ko Awatea Auckland, New Zealand)
Manisha Nair (University of Oxford, Department of Public Health, Oxford)
Kremlin Wickramasinghe (University of Oxford, Department of Public Health, Oxford)

Sucharita Yarlagadda (University of Oxford, Department of Public Health, Oxford)

Background: Near-peer teachers have a number of benefits for the teachers, the students and the learning environment. Near-peer teachers can provide particular benefits because their similar age and recent experiences mean they have a better understanding of the students' knowledge and thus can teach at an appropriate level.
Summary of work: This initiative used near-peers (doctoral students) to develop a programme of teaching for masters students. Those doctoral students developing the curriculum had graduated from the MSc Global Health Science within the previous three years and had identified a 'gap' in the teaching of practical skills - skills important for their future careers as researchers or policy-makers. They also identified the need for doctoral students to develop teaching skills.
Summary of results: The doctoral students delivered a coherent programme of practical skills training for masters students; this included team working, writing, oral presentation, advocacy and debating skills. The masters students valued the training programme and, despite a pressurised course, felt it a worthwhile use of their time. Doctoral students developed not only skills in but also in organisation and leadership.
Conclusions: Doctoral students who have recently graduated from a masters programme are in an excellent position to identify the need for changes in the curriculum. With adequate support and resources, they can also deliver the changes thus enriching the learning of the masters' students and developing their own teaching skills.
Take-home messages: Those with responsibility for curriculum development at masters level should regard alumni as an important resource.

5GG/4
A study to explore the effects of anonymity on peer feedback in an integrated clinical anatomy presentation

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Leo Donnelly (Liverpool University, Human Anatomy Resource Centre, Liverpool, United Kingdom)
Lee Coombes (Plymouth University, Peninsula Schools of Medicine and Dentistry, Plymouth, United Kingdom)

Background: It is widely recognised that to develop competency in professional skills it is necessary for a student to reflect on his/her behaviour. In order to facilitate reflection, it is important to have constructive feedback on how others (including peers) view that behaviour.
Summary of work: 225 medical students were randomly allocated to groups, half of which were given tuition on how to provide constructive feedback. All students subsequently gave feedback (either anonymously or

named) on formatively assessed peer presentations. Feedback forms included six Likert-style statements which required marking of a line (extending from 0 to 100) to indicate degree of agreement. Quantitative feedback data was categorized in one of four groups depending on whether it had been given anonymously or non-anonymously, and with or without extra instruction.
Summary of results: Mann-Whitney U-tests were applied to the non-parametric data sets. Students who had been tutored in giving constructive feedback showed significantly improved scoring, which appeared to counter the effect of anonymity.
Conclusions: As expected, anonymity allowed students to be more critical of their peers in a formative assessment setting. This effect was, however, ameliorated by prior tuition on how to be constructively critical when giving feedback. It also came to our attention that students giving a presentation were able to positively engage with providers of feedback (when identified).
Take-home messages: Providing appropriate tuition to students on how to give constructive feedback improves the value of the feedback given, while also providing an opportunity for collaborative learning.

5GG/5
Peer tutoring translates to the confidence level in the clinic and is driven by high motivation of the peer tutors

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Outi Kortekangas-Savolainen (The University of Turku, Medical Faculty Medical Education Research and Development Centre, Turku, Finland)

Background: We have implemented peer assisted learning (PAL) in a clinical skills' refreshing course for medical students before their clinical attachment. Each of the peer tutors is trained and assessed by a clinical teacher and they receive structured pedagogical guidance before and after tutoring.
Summary of work: We focused on the experiences on tutoring of twelve peer tutors with a semi-structured interview. Data were analyzed qualitatively.
Summary of results: All peer tutors reported improvement in their pedagogical and clinical skills, as was expected. Some reported significant translation to clinical competence when they worked as assistant

doctors in clinics the following summer. Motivation to teach was the driving factor for applying to peer tutoring as compared to pre-acquired skill level in a certain topic indicating a strong future motivation to teaching among peer tutors. Peer tutoring promoted collegiality, and was especially valued by the peer tutors.
Conclusions: Peer tutors are highly motivated to teaching and learning while tutoring transfers to confidence in clinical work. Peer tutoring offers motivating learning to tutors and tutees alike and would be perfect for scouting skilled future teachers.
Take-home messages: Peer tutors are highly motivated and tutoring is a strong learning experience that promotes collegiality.

5GG/6
An evaluation of Paediatric and Neonatal Life-Support Training on Medical Students' Clinical Confidence and Interest in Paediatics

Olivia Corn (University of Cambridge, Clinical School, Churchill College, Cambridge CB3 0DS, United Kingdom)
Natasha Aikman (University of Cambridge, Clinical School, Cambridge, United Kingdom)

Background: Few medical students are exposed to paediatrics before their rotations in fifth year, giving little opportunity to gain an insight into the specialty or take part in experiential learning activities.
Summary of work: The annual Paediatric and Neonatal Life-Support Training Day is organised by the student-led Cambridge University Paediatric Society for medical students. Based on last year's feedback we allocated student groups by year of study. The format consists of 3 introductory lectures and 8 scenarios and skills stations facilitated by paediatricians, with each student leading one scenario. 21 students returned retrospective questionnaires evaluating the usefulness of teaching and impact on confidence and interest in paediatrics, using the 5-point Likert scale.
Summary of results: Grouping by year of study was felt to be beneficial (4.52) by all students and all sessions were rated as highly useful. Everyone agreed that leading a scenario was useful (4.52), and that they would feel more confident approaching a 'real life' situation (4.35 neonates; 4.5 paediatrics). This is significantly higher than in 2012, when groups were randomly allocated (3.35; 3.87). Overall, the event increased interest in paediatrics as a career (4.14).
Conclusions: Dividing students into year groups helped to make the experience of the scenarios as useful for all. Running practical sessions helps increase confidence in how to approach real life situations.
Take-home messages: Student-led training days are a good opportunity for students of all levels to develop an interest in paediatrics. Being in groups of a similar level can help make the experience more worthwhile.

5GG/7
'What I wish I had known': Reducing exam-related anxiety through a peer-delivered lecture

Patrik Bachtiger (UCL, Medical School, London, United Kingdom)
Owain Donnelly (UCL, Medical School, London, United Kingdom)

Background: The different approach to learning required in clinical years at medical school may cause students significant anxiety. We composed a lecture to alleviate this anxiety, in two ways: firstly, to explain the format of assessments from a student's point of view, and secondly, to create an early awareness of useful resources. Entitled 'What I wish I had known: Clinical SBAs and OSCEs', the lecture was targeted at students entering their first clinical year (year 4) at medical school.
Summary of work: The lecture was delivered by two year 5 medical students. Content was drawn from the feedback of medical students who recently sat their Year 4 summative single-best-answer (SBA) paper and observed structures clinical examination (OSCE). The lecture sought to clarify the format of assessments, as well as suggesting resources and methods for time-efficient, high-yield revision. The lecture's impact was assessed by questionnaire, the main outcome measure being influence on exam-related anxiety.
Summary of results: 89 students returned completed feedback. Anxiety over revision methods and resources significantly decreased. The lecture was rated as "very useful" overall.
Conclusions: Students with recent assessment experience delivering the lecture offers a more relatable presence than a faculty member. Such peer-lectures stand to offer invaluable insight for medical students about the format of assessments and the resources available, with a potential bearing on exam performance by facilitating a reduction in anxiety, as well as through increasing awareness of quality learning tools.
Take-home messages: Peer lectures on exam structure and revision resources are considered very useful by students, and considerably decreased student anxiety.

5GG/8
Medical Students' Use of Peer Assisted Learning on Clinical Placements

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Elizabeth Molloy (Monash University, HealthPEER (Health Professions Education and Educational Research), Faculty of Medicine, Nursing & Health Sciences, Melbourne, Australia)
Ben Canny (Monash University, Faculty of Medicine, Nursing & Health Sciences, Melbourne, Australia)

Terry Haines (Monash University, Southern Physiotherapy Clinical School, Physiotherapy Department, Melbourne, Australia)

Background: Monash University runs a hybrid PBL-lecture curriculum, five-year undergraduate medical program. Peer Assisted Learning (PAL) is incorporated into pre-clinical activities. There are fewer formal PAL structures on clinical placements. PAL may be useful in building graduates' life-long 'non-technical skills', such as communication, teamwork, time-management and self-direction (Lincoln & McAllister 1993; Secomb 2008). Little is known about formal (structured) or informal PAL on medical students' clinical placements.
Summary of work: In 2012, Year 3 students at Monash University were surveyed on PAL activities and experiences, aiming to capture all PAL occurrences. This provided a basis for ethnographic observations of PAL on clinical placements.
Summary of results: 54 students responded from metropolitan, rural and international (Malaysia) sites. On average, students reported using PAL 24.3 times/week. 71% indicated PAL was self-initiated rather than educator-initiated. Students identified benefits to PAL, but expressed reluctance to evaluate their peers, primarily because they lacked confidence to judge 'good performance'. Results from the subsequent Observational Phase will also be presented.
Conclusions: PAL may improve health professional graduates' learning, communication and team-based skills. This study suggests medical students use PAL on clinical placements. Exposure to formalised, facilitated PAL in pre-clinical years may orientate learners to PAL's purpose and benefits. A significant gap in understanding remains regarding how PAL is enacted (and the impact of this) in the clinical environment.
Take-home messages: Students voluntarily use PAL on clinical placements: this occurs mainly in informal settings. PAL benefits could be enhanced through orienting learners to PAL methods and outcomes, and providing learners and educators with frameworks for supporting PAL.

5GG/9
A bespoke training programme for effective student representation

Emma Vaccari *(The University of Manchester, Manchester Medical School, Manchester, United Kingdom)*
Nathan Huneke (The University of Manchester, Manchester Medical School, Manchester, United Kingdom)
Helen Franklin (The University of Manchester, Manchester Medical School, Manchester, United Kingdom)
Leena Patel (The University of Manchester, Manchester Medical School, Manchester, United Kingdom)

Background: Manchester Medical School (MMS) is among the largest in the UK with over 2300 students. Student Representation was restructured in 2010-11

and it was recognised that a tailored training programme would help representatives to fulfil their roles.
Summary of work: The content of the training was identified from discussions with student representatives, academic staff and senior administrators. The training was jointly delivered by staff and retiring student representatives over four interactive evening sessions. The training aimed to familiarise representatives with their specific roles as well as those of staff, the school and the university. Specific workshops included team working, how to represent students at committees, gathering information from students and dealing with challenging situations.
Summary of results: Feedback after each session was positive and was used to improve the following year's training. Student representatives have demonstrated exceptional team working and leadership skills through a range of innovative projects such as a student led award for the excellent teacher. Their contributions are consistently commended by staff.
Conclusions: MMS' new training programme has enabled representatives to contribute effectively from early in their role and to develop as leaders and team workers. In a large medical school, an effective student representation system is necessarily complex. A bespoke training programme is vital for the system to work well, especially considering the annual turnover of student reps.
Take-home messages: Large medical schools should provide specific training to allow their student representatives to achieve their full potential.

5GG/10
Development of a mobile web-based tool for competency-based peer assessment of clinical skills

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Okimi Peters (University of Toronto, Department of Medicine, Toronto, Canada)
Lisa Richardson (University of Toronto, Department of Medicine, Toronto, Canada)

Background: Traditionally, students have learned clinical skills by reading text-based resources describing proper technique. Given the recent shift to competency-based education and push to move education out of the classroom and into clinical environments, we have created a tool to facilitate peer-based teaching and feedback of clinical skills in real time.
Summary of work: Our student-led initiative is a mobile, web-based tool to aid in peer-to-peer observation and feedback in clinical settings. It contains assessment forms for specific physical exams enabling students to observe each other performing physical exam maneuvers. The tool then emails the student with immediate, objective feedback. It also contains a multimedia-rich resource for learning physical exam

skills. The tool was piloted with medical students in their preclinical years to assess for uptake and perceptions.

Summary of results: The tool was extremely well received by administrators and students and has now been integrated into the preclinical curriculum. Since its introduction, the tool has seen consistent use, increasing prior to examinations.

Conclusions: This novel tool addresses the need for competency-based assessment of clinical skills training in medical education, while encouraging students to learn in the clinic instead of the classroom. In the future, this tool could be used to formally track students' competency in clinical skills. Advanced layers of content could also be added to increase yield for senior medical students and residents.

Take-home messages: Our tool provides a new way for students to learn and practice clinical skills by enabling real-time observation and feedback in a user-friendly, easily accessible format.

5GG/11
The 3 'E's - ethics, education, elearning

Max Schofield (KCL, KCLSOM, London, United Kingdom)
Natashja Kasianczuk (KCL, KCLSOM, London, United Kingdom)
Qasim Ali (KCL, KCLSOM, London, United Kingdom)
Sabrina Jiwani (KCL, KCLSOM, London, United Kingdom)
Samuel Evbuomwan (KCL, KCLSOM, London, United Kingdom)
Elizabeth Chamberlain (KCL, KCLSOM, London, United Kingdom)

Background: The inter-disciplinary Student Clinical Ethics Committee at King's College London School of Medicine welcomes members from all healthcare disciplines. Ethical issues arising in cases referred by clinical year students are discussed at monthly meetings and case summaries are disseminated online. In order that SCEC members are confident in discussing complex ethical and legal issues, and to demonstrate core competencies, an e-learning module has been created in collaboration with Faculty and SCEC members. This enables potential SCEC members to work through key ethical and legal issues frequently arising in clinical cases discussed by the SCEC.

Summary of work: Student members of SCEC identified topics frequently discussed at SCEC meetings and created self-contained 'modules' which students can work through to promote knowledge and understanding. Topics include capacity, best interests, consent/refusal, mental health, autonomy and beneficence in end of life care. The e-learning modules utilise film clips, newspaper stories and podcasts to create a dynamic multi-media format. Previous clinical cases discussed by the SCEC are used to illustrate relevant ethical and legal issues.

Summary of results: The e-learning module has been piloted with a student led focus group and positive feedback has been received from the School of Nursing and Midwifery.

Conclusions: The ethics e-learning module is an effective method to provide ethics learning to students wishing to become members of the SCEC. It has the potential to be used by medical and other healthcare students to support ethics learning in an innovative way using clinically relevant case scenarios.

Take-home messages: The importance of student involvement in developing learning materials.

5GG/12
Preparing for practice using a self-directed approach to learning from virtual patients: A randomised trial of the effect on clinical performance

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Maria Birkvad Rasmussen (Rigshospitalet, University of Copenhagen, Center for Clinical Education (CEKU), Copenhagen, Denmark)
Lars Kayser (University of Copenhagen, Faculty of Health and Medical Science, Copenhagen, Denmark)
Uno Fors (Stockholm University, Department of Computer and Systems Sciences, Stockholm, Sweden)
Charlotte Ringsted (University of Toronto and University Health Network, The Wilson Centre, Toronto, Canada)

Background: Virtual Patients (VPs) are reported to have effectiveness at least similar to traditional teaching methods and have many advantages. The traditional way of using VPs is by having students work on teacher prepared cases. Yet, recent studies suggest that engaging students in preparing cases are both feasible and valuable. However, learning from preparing VP cases has received little attention. Although training on VPs is considered to prepare for meeting real patients, little is known about transfer of skills to clinical performance. The aim of this study was to compare the effect of engaging students in preparing VP cases compared to solving teacher-prepared cases measured by learning in terms of theory (MCQs) and transfer of skills to clinical performance.

Summary of work: A voluntary sample of 34 medical students, without prior clinical experience, was randomized to either creating or solving four virtual patient cases in Web-SP. Learning outcome was measured by MCQ tests (95 questions) before and after working with VPs and a patient encounter skills-test in terms of obtaining history and performing physical examination on two standardised patients. Students' performances were video-taped and assessed using a previously validated scoring form, structured according to RIME categories (Reporter, Interpreter, Manager, and Educator). Finally, students' reactions to the training formats were compared.

Summary of results: Data-analysis is in progress, will be presented at AMEE 2013.

Conclusions: At AMEE 2013 we present the results of MCQ tests, patient encounter skills-tests, and students' reactions for two groups of medical students, working with self- or teacher-prepared VP cases.
Take-home messages: Will be presented at AMEE 2013.

5GG/13
Peer learning - exploring resource creation with videos

DS Furmedge (University College London Medical School, Academic Centre for Medical Education, London, United Kingdom)
A Samways (University College London Medical School, Academic Centre for Medical Education, London, United Kingdom)
R Kumaria (University College London Medical School, Academic Centre for Medical Education, London, United Kingdom)
E Collinson (University College London Medical School, Academic Centre for Medical Education, London, United Kingdom)
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Background: Each year UCL Medical School runs an 'introduction to medicine' program of peer-assisted learning for students beginning their 'clinical' years. As part of this program peer facilitators undertake an education based project aimed at improving education for students in more junior years.
Summary of work: As a pilot, peer facilitators produced short videos for students beginning hospital placements. The videos were designed, written and filmed by the facilitators and included topics such as 'writing in a patient's clinical record' and 'around the patient bedside'. The videos were uploaded onto the medical school virtual learning environment for student use before clinical placement. Students were surveyed with regard to the value of the videos.
Summary of results: Evaluation of the videos was positive. 84% felt that the videos were of high quality, 86% wanted more similar videos to be produced and 86% felt that benefit was gained by the videos having been produced by other students. Numerous suggestions for other desirable videos were made. The use of more senior medical students in developing these videos created resources which were valued and have been incorporated into the medical school teaching. Students felt that value was added by the fact that these had been created by medical students rather than faculty.
Conclusions: The use of senior medical students to create teaching videos has been an overwhelming success. The medical school has been encouraged to enable more similar videos to be produced.

Take-home messages: The use of medical students to create and devise educational resources should be strongly encouraged.

SESSION 6: Plenary 2
Tuesday 27 August: 0830-1015

6A Plenary: Connecting medical education and patient care in the 21st century
Location: Congress Hall, PCC

Victoria Brazil (Bond University, Gold Coast, Australia)

Summary: Impressive advances in medical education have occurred through technology, global collaboration and the involvement of professional educators. These have the potential to make healthcare education more effective, efficient and less costly. However there is a risk that these advances may move medical education (and learners) further from direct patient care, and from other agendas in health - resource stewardship, health service improvement and workforce needs. This presentation will look at two critical roles for medical education in the 21st century - aiming for a different 'end point' in the 21st century doctor, and reforming processes to achieve that aim, including returning patients to the centre of the educational process.

Biography: Victoria Brazil is an emergency physician and medical educator. She is a senior staff specialist at Royal Brisbane and Womens Hospital in Brisbane, Australia, where she has worked in clinical emergency medicine practice, and at the 'coalface' of teaching, since 2002. Dr Brazil is also an Associate Professor within the School of Medicine at Bond University on the Gold Coast, where she is Theme Lead for Doctor as Practitioner. She was previously the inaugural Director of Queensland Medical Education and Training (QMET), within Queensland Health. This role encompassed medical education and workforce policy and strategy, across the continuum of medical learners. She is a previous Fulbright scholar (2002) and received the ACEM Teaching Excellence award in 2008.

6B Plenary: "See One. Taste One. Make One. Teach One." Enhancing Medical Education in an Era of Global Obesity and Diabetes
Location: Congress Hall, PCC

David Eisenberg (Harvard School of Public Health, Boston, United States)

Summary: Recognizing that a healthcare professional's personal behaviors (e.g. exercise, diet, seat belts) are strong predictors of their advising patients about these same behaviors, how best to "teach the teachers" to lead by example? And how shall we "translate" decades of nutrition science, behavioral and addictions medicine, exercise physiology, health coaching and mindfulness training into meaningful educational platforms for healthcare professionals and their patients? How can relevant self-care, behavioral skills be judiciously incorporated into medical education programs which now need to include health promotion as well as disease diagnosis, treatment and management? David Eisenberg will summarize work jointly developed by colleagues from Harvard, The Samueli Institute and The Culinary Institute of America, to showcase new educational approaches which combine didactic elements with "experiential learning" to transform practitioners, so that they, in turn, will be more effective healthcare providers.

Biography: David M. Eisenberg is Associate Professor of Nutrition at the Harvard School of Public Health and Executive Vice President for Health Research and Education at the Samueli Institute. He is a graduate of Harvard College and Harvard Medical School and is Board Certified in Internal Medicine. From 2000-2010 Dr. Eisenberg served as the founding Chief of the Division for Research and Education in Complementary and Integrative Medical Therapies at Harvard Medical School. He currently directs the educational conference, "Healthy Kitchens, Healthy Lives - Caring for Our Patients and Ourselves" which is co-sponsored by Harvard and the Culinary Institute of America. His current educational and research interests include the development and assessment of novel, multi-disciplinary strategies to optimize lifestyle and self-care behaviors (e.g. diet, exercise and stress management) to prevent, treat and manage common medical conditions.

SESSION 7: Simultaneous Sessions
Tuesday 27 August: 1045-1230

7A Symposium: Assessing competencies using milestones along the way
Location: Congress Hall, PCC

Ara Tekian (University of Illinois at Chicago, USA)
Brian Hodges (The Wilson Centre, University of Toronto, Canada)
John Norcini (FAIMER, Philadelphia, USA)
Trudie Roberts (Leeds Institute of Medical Education, UK)
Lambert Schuwirth (School of Medicine, Flinders University, Adelaide, Australia)

During the past decade, a great emphasis has been placed on outcome based education. Many programs, both at undergraduate and postgraduate levels, have created "competencies" that summarize the fundamental knowledge, skills, and abilities that are required for the successful completion of a program. Furthermore, "milestones" are articulated to monitor and measure the progress of a person. This symposium will explore the different interpretations and misinterpretations of "competencies" and "milestones", debate their application and usefulness in health professions education, and probe the controversies inherent in measuring them. These concerns will be examined through the European, American, Canadian and Australian perspectives.

7B Symposium: Learning to Lead: Pearls and Practical Insights for Future Leaders in Academic Medicine
Location: Meeting Hall I, PCC

Emery Wilson (University of Kentucky, USA)
Carol Elam (University of Kentucky, USA)
Frank Simon (Foundation for the Advancement of International Medical Education and Research, USA)
Walter Ricciardi (Catholic University of the Sacred Heart, Institute of Hygiene and Public Health, Italy)

Newly appointed leaders in academic medicine often are unprepared for administrative challenges. This symposium will: 1) examine practices that contribute to able academic leadership, 2) outline personal characteristics and skills of successful leaders, and 3) offer strategies to nurture new leaders. Citing relevant literature and providing examples in the form of "pearls" or brief experiences, seasoned administrators will describe ways that leaders in academic medicine can best communicate and promote the missions of an institution, relate to students and faculty, implement change, manage the budget, and interact with the community and society, all in a manner that advances the institution.

7C Short Communications: Continuing Professional Development
Location: Panorama, PCC

7C/1
"Journal Based Blogs"- Is this the future of medical publications?
(Miriam Friedman Ben-David 2012 Award Winner Presentation)

<u>Kenar D Jhaveri</u> *(Department of Medicine, Hofstra North Shore LIJ School of Medicine, Great Neck, NY)*
Vinay Nair (Icahn School of Medicine at Mount Sinai, New York, NY)

Background: Young physicians and students are more comfortable viewing online publications and often prefer online educational material to print. To serve this growing change, most journals have created web sites enabling their readers to view publications online.
As the need for an ongoing evaluation process grows, some journals have begun creating web logs or "blogs" and allowing public commentary on web sites, which allows readers to express opinions on publications and share them with colleagues.
Summary of work: We reviewed all biomedical journals with an impact factor >=4 (Journal Citation Report, 2010) for the use of web sites, blogs, commentary sections, and social media. A summary list of all journals was sorted by impact factor. Each journal web site was accessed and reviewed for a blog; for Twitter, Facebook, or e-mail sharing; and for a comments section.
Summary of results: Out of 588 biomedical journals with impact factor >=4 reviewed,
9% of the journals had a blog. The option of direct commenting after an article was present only in 8% of journals while 90% utilized social media or email for sharing. Only mere 2% of journals offered all three features: commentary section immediately after the article, a blog and social media features. General internal medicine journals were more likely to have a blog and commentary section compared to specialty journals.
Conclusions: Only a small percentage of biomedical journals had a blog. Journal based blogs have started but still have a long way ahead for impact on education and readership.
Take-home messages: Allowing sharing and readers to comment directly after an article or in a journal based blog, will allow better discussion of published manuscripts, facilitate ongoing
peer review, and encourage interaction between authors and readers. Journal blogs might provide that avenue for readers and authors.

7C/2
Can the reasons why clinicians use PubMed or UpToDate inform education in Evidence Based Practice? A qualitative analysis

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Olle ten Cate (University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands)
Feikje van Stiphout (University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands)
Edith ter Braak (University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands)
David Irby (University of California, San Francisco, Medicine, San Francisco, United States)
Bridget O'Brien (University of California, San Francisco, Medicine, San Francisco, United States)

Background: To engage in evidence-based practice (EBP), physicians must locate evidence. Whereas EBP curricula traditionally train physicians to search for evidence via PubMed, physicians use a variety of resources in EBP, including the popular resource UpToDate. Little is known about why physicians select particular resources such as PubMed or UpToDate to guide clinical care.
Summary of work: We conducted semi-structured interviews of physicians in the United States (n=13) and The Netherlands (n=9), eliciting participant's reasons for using PubMed and UpToDate and perceived usefulness of these resources. Interviews were recorded, transcribed and analyzed using thematic analysis. Initially two researchers reviewed all transcripts and, using open coding, identified codes related to resource selection. Codes were vetted by four additional researchers for appropriateness, then applied to all transcripts.
Summary of results: Participants in both countries similarly described PubMed and UpTodate and reasons for selecting resources. We identified seven reasons for using PubMed and UpToDate, including: to refresh knowledge, confirm knowledge, undertake research, answer logistical questions, teach, generate ideas and support personal learning. Our analysis revealed that participants' perception of each resource's usefulness also influenced resource selection.
Conclusions: Physicians seeking evidence select PubMed and/or UpToDate based on their reason for seeking information and on perceived fit with the strengths and limitations of each resource. Physicians' reasons and perceptions are currently not incorporated into EBP education. Our findings challenge traditional EBP curricula, which focus on PubMed, and suggest a broadening of information resource training to prepare learners with evidence retrieval skills synchronized with the realities of clinical practice.

7C/3

Perceived Value of CME systems in meeting the Learning Needs of Orthopaedic Surgeons in Community Hospitals

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Michael Cunningham (AO Foundation, AO Education, Dubendorf, Switzerland)

Background: As a response to concerns of patients and employers educational systems have been set up in many countries to ensure that medical practitioners are up to date. These systems require doctors to accumulate points by participation in CME accredited events. Data relating to the effectiveness of such schemes is limited.
Summary of work: 54 consultant orthopedic surgeons and 10 hospital managers were interviewed in 10 different countries to identify the educational needs and preferences of surgeons in community hospitals. Details of the formal CME requirements for these surgeons were obtained in nine of these countries.
Summary of results: Nearly all surgeons interviewed are either unaware of CME regulations or feel they are unimportant. Non-CME accredited education provided by commercial companies is highly valued by surgeons when they wish to introduce new technologies.
Conclusions: Doctors usually look for education to enable them to solve clinical problems .The study suggests that meeting CME requirements is not important to orthopedic surgeons and that policies to ensure high medical standards may need to focus more on the effectiveness of education than the presence of a surgeon at a CME accredited event. Orthopaedic surgeons in community hospitals do not base their educational choices on the grounds of CME accreditation.
Take-home messages: Existing systems of ensuring that doctors practice safely are not perceived to be of high value by surgeons working in community hospitals.

7C/4

A guide to inter-professional continuing professional development

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Martin Labelle (FMOQ, Continuing Education, Montréal, Canada)
Daniel Paquette (FMOQ, Continuing Education, Montréal, Canada)

Background: The Quebec primary care model for chronic disease management is transforming. General practitioners, nurses, pharmacists and other health care professionals are embedded in Family Medicine Groups (GMF) and other community health care organizations to work in in an environment of inter-professional-collaboration (IPC).The current perception that inter-professional continuing professional development (IPCPD) is designed for the lowest knowledge common denominator must change. IPCPD should be designed to facilitate team collaboration as well as to improve the health care continuum, patient care and security. As well, the IPCPD model should improve satisfaction among the healthcare team.
Summary of work: The FMOQ has partnered with Eli Lilly Canada's medical education department to form a working group with the following objectives: develop a guide with key principles to IPCPD activity creation; define the legal implication of IPC; elaborate and apply key principles in the creation of IPCPD; respect the adult learning cycle; propose tools for the development and the evaluation of IPCPD with the aim of enhanced patient care. Methodology: An extensive literature search has been performed. The keys principles developed were validated by an IPC group. The guide was reviewed by an experimented IPCPD provider.
Summary of results: 11 key principles were identified: 1.Identify the target audience; 2.Identify the team and the population needs; 3.Develop learning objectives; 4.Adapt the learning format to the working environment; 5.Target content to patient needs; 6.Integrate communication skills; 7.Negotiate and share roles and responsibilities; 8.Promote a process of shared decision making; 9.Prevent and resolve conflict; 10.Appoint a leader; 11.Assess and respond.
Conclusions: In the context of changing Quebec's primary care model, the guide will promote the development of IPCPD and improve team inter professional collaboration, thus enhancing patients care.
Take-home messages: IPCPD improves the IPC and then health care continuum, patient care and safety. The conception of an IPCPD activity should respect the 11 identified key principles.

7C/5

Plastic dolls and all the other stuff: a case study of learning and emergency preparedness in 6 primary care GP practices in South London

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Nicholas Gosling (St George's Healthcare NHS Trust, Education and Development, London, United Kingdom)
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Clarissa Carvalho (Guy's and St Thomas' NHS Foundation Trust, Anaesthesia, London, United Kingdom)

Background: Evidence shows that most general practices have at least one emergency presentation per year. We developed a simulation-based learning (SBL) programme for GP practice staff which we delivered to 6

primary care practices in South London. The aim of this study was to use SBL technologies to probe practice response to emergencies and to explore and evaluate changes in practices emerging after a cyclic learning collaboration between hospital staff and practice staff. We drew on contemporary theories of work-place learning to sharpen our analysis of impact.

Summary of work: We worked at 2-month intervals with 42 clinical and non-clinical staff in 6 primary care GP practices in South London (UK). We analysed: Video documentation of simulation exercises; developmental SMART plans from each practice after every cycle; field notes from hospital clinical facilitators; pre and post primary care safety questionnaire (SAQ).; 4 focus group interviews with clinical and non-clinical staff.

Summary of results: Practices initially overstated their 'readiness' to respond to emergencies in mandatory UK Quality Outcomes framework. This framework appears insensitive to the ideas of emergency preparedness emerging from the collaboration. Perceptions of safety and teamwork in the practices increased significantly.

Conclusions: We related our observations and data to mandatory legal frameworks for primary care and individual practice self-assessments and identified a number of inconsistencies and contradictions.

Take-home messages: Non-optimal levels of emergency preparedness were common in large practices. Contemporary theories of work-place learning are useful to conceptualize how SBL can probe preparedness and expand notions of learning.

7C/6
Continuing professional development: Learning that leads to changes in individual and collective clinical practice

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Tierney Kinnison (Royal Veterinary College, University of London, LIVE Centre, Hatfield, United Kingdom)

Background: Traditional continuing professional development (CPD) has often failed to produce changes in professional practice, or patient benefits. The RCVS Certificate in Advanced Veterinary Practice (CertAVP) has tried to address this through a combination of individually selected elements, assessed through reflective essays, each receiving personal feedback. The aim of this project was to explore the effectiveness of learner centred CPD on professional practice, through the CertAVP final summary essays.

Summary of work: Twelve essays were selected for content analysis, and independently coded. At an initial meeting, content, behavioural and outcomes-related codes were identified, revealing parallels with Kirkpatrick's hierarchy for educational programme evaluation. Therefore, a matrix was developed for further directed coding of areas of practice against learning, changes in behaviour, and practice/patient benefits.

Summary of results: The effect of this CPD can be understood through a framework of "stakeholder" dynamics, with impact and at the individual level having an effect on practice team behaviours, leading to patient benefits. Dominant themes at the individual level were communication and the learning process. Emergent themes at the level of the practice team focused on how people and systems-related factors affected standards, motivation and performance to the benefit of the practice team, business performance and client satisfaction.

Conclusions: Exploration of the RCVS CertAVP, learner-centred approach to CPD has demonstrated that learner choice of material, together with iterative developmental feedback (assessment for learning) can lead to meaningful learning, changes in practice and benefits for animals and their owners.

Take-home messages: Appropriately structured CPD can lead to meaningful learning in terms of changed behaviours of clinicians.

7D Short Communications: Social Accountability

Location: Meeting Hall IV, PCC

7D/1
Medical students and social accountability

Chivaugn Gordon (University of Cape Town, Obstetrics & Gynaecology, 10 Livingstone Road, Claremont, Cape Town 7708, South Africa)

Background: Social accountability is a prerequisite for all Faculties of Health Sciences. There is considerable literature acknowledging this and encouraging institutions to increase their efforts to implement change to create socially responsive graduates. Lack of exposure to 'coal face' primary health-care situations may be restricting students' growth in developing greater social awareness and responsiveness. One way to accomplish this could be through participation in student-run volunteer clinics. These clinics reflect the shift in students' training from hospital-based to more student-centred, community-based learning.
Summary of work: The University of Cape Town is exploring students' attitudes to student-run, volunteer, after-hours clinics, which take place in under-serviced and disadvantaged areas. Method: Purposively selected focus groups are being undertaken to gauge the motivations behind students' volunteering to attend the Students' Health and Welfare Community Organisations (SHAWCO) clinics. These clinics take place in informal settlements around Cape Town. The focus groups will assess students' attitudes to this constructivist, and potentially transformative learning experience.
Summary of results: Data from the interviews about students' attitudes and perceptions of their personal growth and clinical acumen gained from clinic attendance will be presented in quantitative and qualitative format. The pilot study has already indicated a considerable growth in altruistic pride through attendance at the clinics.
Conclusions: Undergraduates who volunteer to serve in clinics set up by fellow students find the experience formative, and that the experience fulfils a significant role in promoting social accountability in their education.
Take-home messages: Student-run clinics have the potential to promote social accountability in the medical curriculum.

7D/2
Are we selecting medical students who will provide socially accountable health care?

Robin Ray (James Cook University, Medicine and Dentistry, Building 39, Townsville 4811, Australia)
Louise Young (James Cook University, Medicine, Townsville, Australia)

Background: The doctor to population ratio in rural areas is in inverse proportion to health status in many countries.   The School of Medicine at James Cook University has a philosophy of social accountability, purposively recruiting students from rural areas and screening applicants through interview. Medical students are selected from a wider pool than those with high academic scores from urban settings.
Summary of work: As part of a review of selection processes, we explored knowledge and understanding of rural medical practise among beginning medical students. Data were collected from 77 first year students undertaking an academic writing exercise. Data were coded and thematically analyzed then compared with interview data from 10 rural GP registrars in-training.
Summary of results: Beginning students and GP registrars in-training expressed many similar conceptions of rural practise including community engagement, access to resources and services, and job satisfaction. Variations occurred in perspectives on isolation, financial issues and personality characteristics needed to succeed as a rural practitioner. Beginning students displayed little insight into solutions or compensatory factors.
Conclusions: While selection criteria may enable choice of candidates with the innate character traits predisposing graduates to work in rural areas, the degree program needs to provide opportunities to nurture these inclinations. Social accountability in curriculum design and delivery including clinical mentoring are critical factors. Selection including rurality and personality characteristics coupled with placement support is more likely to meet workforce needs for rural and remote populations.
Take-home messages: Ability as well as intent to practise socially accountable medicine is an important factor in selection and cultivation of medical students.

7D/3
The impact of a new medical school on primary care in its locality

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Maggie Bartlett (Keele University, School of Medicine, Keele, United Kingdom)
David Blanchard (Keele University, School of Medicine, Keele, United Kingdom)
Simon Gay (Keele University, School of Medicine, Keele, United Kingdom)
Sheena Gibson (Keele University, School of Medicine, Keele, United Kingdom)
Robert Jones (Keele University, School of Medicine, Keele, United Kingdom)

Background: Keele University School of Medicine has an innovative new curriculum with a strong focus on the community, primary care and general practice: all our students spend a minimum of 113 days in general practice placements in years 3, 4 and 5 of which 75 days are in the final year. We now describe the impact of the School on general practice in our area.

Summary of work: We collated data on the list size of current teaching practices, county populations and the investment in practice quality and premises development.

Summary of results: We currently have 100 active teaching practices: 86 in Staffordshire and Shropshire, the rest in 6 neighbouring counties or cities. 31% of 279 practices in Staffordshire and Shropshire teach. Our active teaching practices provide primary medical care for 802,857 people: 714,272 are registered with practices in Staffordshire and Shropshire which represents 45% of the counties' population. We have invested in the premises of 25 practices which provide services for 208,047 or 13% of people living in Staffordshire and Shropshire. In the academic years 2010 to 2012 we conducted 194 practice development visits and provided 27 half days of general practices tutor development activity.

Conclusions: Our School has made a major impact in Staffordshire and Shropshire and beyond by investing in the premises and skills of practices which serve a large proportion of the population.

Take-home messages: A medical school can have an influence on medical practice beyond that in its associated teaching hospitals.

7D/4
Social Accountability: hearing community voices

Lionel Green-Thompson (University of the Witwatersrand, Centre for Health Sciences Education, Faculty of Health Sciences, 7 York Road, Parktown 2193, South Africa)

Background: Social accountability of educational institutions has been defined as responding to defined communities' needs in the area of research, service and education (Boelen and Heck 1995). The Lancet Commission has recommended the transformation of educational programmes in the health professions to produce graduates which are change agents responsive and accountable to the communities which educate them and in which they are called to serve. There is little data from communities in South Africa about their expectations of medical practitioners. Medical students at Wits University have contact with communities in three provinces.

Summary of work: Focus groups were held in several communities in which Wits medical students have clinical clerkships. These groups were selected together with the coordinators of the community sites and included young people, traditional healers and older members of the community. The numbers in each group varied from six to twelve participants. Group discussions were conducted in the vernacular of that region with the aid of an interpreter.

Summary of results: Three main themes have emerged from the focus group discussions: doctor – patient relationships (Participants have negative experiences with doctors in the public sector. They report more positive experiences in private sector), respect and love (For many participants, social accountability of doctors is

the expectation that doctors treat them with "respect and love") and identification of health priorities (both social determinants and medical conditions described)

Conclusions: Communities are able to define their health priorities. They expect doctors to treat them with respect as part of their accountability.

Take-home messages: There is a need for increasing the active involvement of communities in developing the definitions of social accountability.

7D/5
Measuring Social Accountability

David Marsh (Northern Ontario School of Medicine, Community Engagement, 935 Ramsey Lake Road, Sudbury, ON P3E2C6, Canada)

Background: Social Accountability (SA) has been gaining attention as an obligation for health professional schools over the past 20 years. Defined by the WHO in 1995, the concepts have been developed and elaborated both by the Global Consensus on Social Accountability and the Training for Health Equity Network (THENet).

Summary of work: As interest in SA has grown, there has been a need identified to articulate how to measure progress towards this aspirational goal. THENet is a collaboration of health professional schools with an explicit SA mandate. These schools have developed an evaluation framework to guide self-assessment of schools of SA. More recently AMEE has launched the ASPIRE initiative including a SA category.

Summary of results: NOSM was a founding member of THENet and participated in the pilot of the SA Evaluation Framework. NOSM also was a pilot site for ASPIRE in SA. This presentation will compare and contrast the two pilot processes with a view to lessons learned.

Take-home messages: Tools for evaluation of SA must be tailored to the context of the school, the goal of evaluation and take into account the processes and values of SA.

7D/6
Medical students' attitudes to community engagement

Sarah Mahoney (Flinders University, Onkaparinga Clinical Education Program, PO Box 494, Noarlunga Centre, Adelaide 5168, Australia)
Linnea Boileau (Flinders University, Onkaparinga Clinical Education Program, Adelaide, Australia)

Background: The WHO (1995) defined social accountability for medical schools as "…the obligation to direct their education, research and service activities towards addressing the priority health concerns of the community….they have a mandate to serve". An urban community-based medical education program in Australia has incorporated a focus on social accountability into its program. In this activity (called 'The Cube') medical students worked with secondary school staff and adolescents in an area of disadvantage

to understand adolescent health issues and to develop resources and services that might benefit adolescents.

Summary of work: Medical student responses to the social accountability activity were obtained through: 1. A critique immediately following the activity; 2. A survey completed after the students had moved onto their next year of study.

Summary of results: Preliminary findings suggest that The Cube offers valuable learning opportunities for medical students. They learn about the issues that are important to adolescents, and their perceptions of health priorities and concerns. Medical students felt they were 'giving back' to the community, and that their work was providing a learning and teaching resource for both the school and future medical students.

Conclusions: Early evaluation of The Cube project demonstrates that a university-community partnership can provide worthwhile learning for medical students. Further development and research is needed to determine whether the intended social impact for adolescents is being achieved.

Take-home messages: Medical schools can incorporate social accountability in their own back yard.

7E Research Papers: Student Selection
Location: Meeting Hall V, PCC

7E/1
The Reliability and Validity of the Resident Selection Process in Relation to the Evaluation of Professionalism: A Pilot Study

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Introduction: The American Board of Internal Medicine defines problem residents as "trainees who demonstrate a significant enough problem that requires intervention by someone of authority" (1). At the University of Geneva Pediatric Residency Program approximately two residents per year (10%) are identified as having knowledge deficits, professionalism issues or both. A limited number of studies document our ability to predict resident performance from the selection process (2), and there are few validated assessment methods to evaluate professionalism (3). An emerging assessment method of professionalism is the Professionalism Mini-Evaluation Exercise (P-MEX) (4), which ranks high in terms of construct validity. We have chosen the P-MEX as a novel approach to supplement the other instruments (structured interview (SI), structured letter of recommendation (SLR), personal characteristics score (PCS), and global evaluation score) currently used in the selection process. The primary objectives of this pilot study are to answer the following questions:
1) How reliable and valid is the existing Geneva pediatric resident selection process?
2) Does the integration of the P-MEX add incremental reliability and validity to the existing Geneva pediatric resident selection process?

Methods: Candidates that were pre-selected for an interview were approached to participate in this study. To establish the validity and reliability of the current selection process, Pearson's correlation coefficients (r) were calculated to determine validity evidence of relationship to other variables among the selection instruments. Kappa analysis was performed to calculate inter-rater reliability among raters.
The integration of the P-MEX was analyzed in relationship to the selection process to determine if there is incremental validity with the addition of the P-MEX. Two examiners assessed candidates using the P-MEX during two standardized patient cases. Generalizability theory was used to establish reliability. A point-biserial correlation and a logistic regression were used to calculate the efficacy of the P-MEX in predicting acceptance to residency.
Results: In 2012, 32 candidates were assessed. Inter-rater reliability was high for the global evaluation (kappa 0.69), moderate for SI (kappa 0.42-0.47), and poor for SLR (kappa 0.27) and the PCS (kappa 0.28). Significant correlations were found between SI and Global 0.638 (p<0.01), between the P-MEX and Global 0.445 (p=0.012), P-MEX and SI 0.360 (p=0.047), P-MEX and SLR

0.370 (p=0.041), and the P-MEX and PCS 0.598 (p<0.001). The G-study of the P-MEX, with two cases, demonstrated a G coefficient of 0.44 and a Phi coefficient of 0.43. The P-MEX was the only selection instrument that was correlated with acceptance (r=0.529, p=0.002) and effective at predicting acceptance (OR=3.35, p=0.028).
Discussion and Conclusion: The selection of residents for post-graduate training is a high-stakes process that deserves a rigorous evaluation of the reliability and validity of the battery of instruments used. The integration of the P-MEX adds another important dimension to this process. The preliminary results are encouraging regarding the reliability and validity of the P-MEX. Further study and analysis will be needed to strengthen the preliminary results and to determine the predictive validity of the P-MEX on residents' performance evaluations.
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4. Wilkinson TJ, Wade WB, Knock LD. A blueprint to assess professionalism: results of a systematic review. Acad Med 2009;84(5):551-8.

7E/2
From Flexner to Gadamer and Habermas: A Critical Hermeneutic Analysis of the Practice of Student Selection for Medical School

Saleem Razack (McGill University, Centre for Medical Education and Department of Pediatrics, Montreal Children's Hospital, 2300 Rue Tupper, Montreal H3H 1P3, Canada)
Matthias Lalisse (McGill University, Centre for Medical Education, Montreal, Canada)
Mary Maguire (McGill University, Faculty of Education, Montreal, Canada)
Brian Hodges (University of Toronto, Wilson Centre and Department of Psychiatry, Toronto, Canada)
Yvonne Steinert (McGill University, Centre for Medical Education, Montreal, Canada)

Introduction: "Social accountability" discourses have been the leitmotif of several high level appeals for transformed medical education to meet the changing needs of society. With respect to student selection, the appeals generally focus on increasing the diversity of medical classes. In this paper, we present a hermeneutic analysis of medical admissions committee members' discourses of medical student selection. Our research questions were:

1. How do committee members construct concepts of equity, excellence, and diversity in conversations and texts?

2. How do these constructs shape their actions in the selection of future medical students?

Hermeneutics can be defined as the interpretation of texts, and student applications to medical school (files and interviews) can be viewed as texts interpretable for meaning. Discourses regulate social institutional practices, and such an analysis may shed light on how the discourses might be reframed to promote selection practice with greater social accountability.

Methods: 11 committee members were interviewed on 4 occasions, each interview with specific texts that study participants discussed. Texts used included: 1) committee members' own journeys to medicine, 2) sample applications, 3) university websites, & 4) committee members' reflections on transformed selection practice. We framed our analysis within the hermeneutic tradition of the Gadamer-Habermas debate and Trede's critical transformative dialogues (CTD) methodology based upon it. Our goals were to develop a critical understanding of the discursive phenomenon of student selection, and, through dialogic engagement, "emancipatory knowledge" free of domination, coercion, and constraint.

Results: We uncovered a dialectical tension between members' perceptions of the selection of the future medical profession and the policy imperatives of service to a diverse society. Within interview transcripts, arguments favoring increased attention to diversity/equity in medical admissions were challenged by the concern that this might lead to the erosion of the core pillars of excellence that define medicine. Within the dialectic tension, however, we did find traces of emancipatory knowledge that might serve an agenda of greater social accountability. Participants saw the potential to widen definitions of excellence ("excellences" vs. "excellence") through dialogic engagement within their community of practice. These opportunities all shared the characteristic of avoiding the dichotomization of excellence and social accountability in student selection.

Discussion and Conclusion: Opportunities exist to transform student selection practice for entry into medical school in ways that address important social accountability concerns, while also respecting medical schools' unique discursive environments. The CTD methodology, rooted in critical hermeneutics, provided an interesting vehicle for the development of committee members' transformative knowledge to this end. We posit that this research methodology may be adaptable to faculty development aimed at addressing issues of social accountability in health professions training.   If the Gadamer-Habermas debate provided the philosophical underpinnings of our analysis, perhaps the reform-minded ghost of Abraham Flexner was there as well, allowing us to understand what the pedagogical elements of a future "Critical Faculty Development" might be for greater social accountability in medical education, beyond that which just pertains to student selection.

References: Trede, et al. (2009). Critical transformative dialogues: A research method beyond the fusion of horizons. Forum: Qualitative Social Research, 10(1).

7E/3
Student admission based on GPA, selection or lottery: a controlled study

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Introduction: There is an ongoing debate about the effectiveness of medical school admissions procedures. Arguments have been presented for the use of either cognitive or non-cognitive selection criteria, random selection, or a combination [1,2,3]. Comparative studies on different admissions procedures are scarce, as in most medical schools all students are admitted by the same set of criteria. However, in the Netherlands students enter medical school through one of the following procedures: (1) based on a pre-university GPA (pu-GPA)≥8, (2) based on a selection procedure, or (3) through a national weighted lottery. This situation offers a unique opportunity to examine the effects of different admissions procedures on study performance and progress.

Methods: Participants were all medical students admitted to the University of Groningen, the Netherlands in 2009, 2010 or 2011 (N=1055) based on either a pu-GPA≥8 (8+;n=143), a selection procedure which included a multiple mini-interview (MMI) [4] (SEL;n=295), or the national weighted lottery. The lottery-group was divided into students who had participated in the selection procedure and were not selected, but had subsequently gained access through the lottery (LOT+SEL;n=315) and students who had only participated in the lottery (LOT;n=302). Outcome measures were scores on four written knowledge tests, scores on a professional development course which focuses on non-cognitive skills, passing the first-year blocks, and completing all first-year courses within the year. We assessed differences in written test scores using ANCOVA with Bonferroni post hoc multiple-comparison tests. We used logistic regression to assess whether groups differed in the percentage of students who (a) passed the first-year blocks, (b) were assessed as 'good' in the professional development course, and (c) completed all first-year courses within the year. We controlled for gender and cohort.

Results: Written test scores differed between groups (F(6)= 21.9-37.9; p<.001). 8+students scored higher than the other groups on all tests (Mean difference MD=.78-1.45;SE=.10-.13;p<.001). On test 1, SEL and

LOT+SELstudents scored higher than LOTstudents (MD=.27-.28;SE=.09;p<.05). On test 3, SELstudents scored higher than LOTstudents (MD=.30;SE=.11;p<.05). 8+students passed all blocks more often than the other groups (OR=3.65-13.61;p<05) except the fourth block, where SEL and 8+students did not differ. SELstudents passed all blocks more often than LOTstudents (OR=1.54-2.13;p<.05). LOT+SELstudents passed two blocks more often than LOTstudents (OR=1.65;p<.05). 8+students passed the professional development course more often than LOTstudents (OR=11.78;p<.05). In this course, SEL and 8+students were assessed as 'good' more often than LOT+SEL and LOTstudents. 8+-students completed all first-year courses within the year more often than the other groups (OR=6.39-9.89;p<.01), whereas SEL and LOT+SELstudents completed all first-year courses within the year more often than LOTstudents (OR=1.46-1.55;p<.05).

Discussion and Conclusion: The results showed that students who were admitted based on a high pu-GPA performed best. Selected and non-selected students' performance did not differ, except in the professional development course which focuses on non-cognitive skills. This finding is consistent with existing research on the MMI [5]. A remarkable outcome is that lottery-students who had participated in the selection procedure performed better than students who had only participated in the lottery. Further research is necessary to analyze whether this can be explained by higher motivation.

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7E/4
Factors behind MCAT-Scores: A systematic review

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Introduction: The selection of students is increasingly becoming a (socio)political discussion point. Especially the selection process for medical college is criticized with regards to (un)fairness, discrimination of socially disadvantaged population groups, perpetuation of a gender gap or simply maintenance of a desired status quo (1,2). However, selection criteria in the context of the selection process for medical college have to be analyzed with regards to whether an invalidation of the above mentioned arguments is possible. The purpose of the present study is the systematic and critical review of publications which discuss the factors that are associated with medical-college-admission-test-scores.

Methods: A systematic, critical literature search was carried out in EMBASE, Medline, Pascal, ERIC and PsycINFO. Limits were the last 10 years as well as the languages German or English. The review includes qualitative as well as quantitative studies that discuss factors associated with medical college admission test scores. The review excludes studies that do not focus on the medical-college-admission-test, studies that deal with drop-out and/or statistical correlations between admission (test-scores) and student success. Full texts were evaluated regarding methodical / theoretical rigor by means of the applicable quality checklist for quantitative / qualitative studies of the Alberta Heritage Foundation for Medical Research. As cut-point for the exclusion of full texts, the value of < 0.75 was chosen (3).

Results: After applying the selection criteria according to the title and abstract screening, 28 publications (of initially 655 references) remained for further evaluation. 15 publications had to be excluded because, e.g., their focus was not of interest. Four additional articles were included from the reference lists. Two articles had to be excluded due to low quality (quality score <0.75). Ultimately, 15 publications met the inclusion criteria and were subjected to further analysis and evaluation. Extracted data were compared and categorized with regards to the research question.

The main statements of the publications were divided in two categories: (i) Factors attributable to the Medical College Admission Test and (ii) Factors associated with the SES (in the broader sense) of potential candidates.

Discussion and Conclusion: The results of the systematic review describe two factors associated with medical college admission test scores that are discussed in the literature. Especially the Medical college admission test does not – and that with regards to construction/design/weighting as well as with regards to the construction of the items or the statistical depiction of the results – succeed in invalidating arguments of discrimination in the broader sense (4, 5). The second category comprises factors that are linked to the socio-economic status, as for example inequality of opportunities depending on the allocating college, or programs and actions that are (occasionally) performed to decrease "uneven distributions" at the university or college level. In this precise context, these factors are also an indication that a pre-selection of potential students is known and accepted as a given. In order to be able to invalidate the mentioned arguments against medical college admission tests, a systematical examination of the mentioned categories is needed

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7E/5
Exploring Resilience to Stress and Trauma in Medical Students

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Introduction: In the last decade, there has been growing interest in documenting the prevalence of mental health issues, as well as identifying sources of stress, during medical training (1). In contrast, there has been little research exploring the individually-based factors contributing to student resilience or vulnerability to stressors. Research in the broader stress domain has been targeted towards determining the factors, labeled resilience resources, either within the person or in his/her environment that foster the ability to maintain functioning despite repetitive or long-lasting demands (2). Emerging factors include perceived social support (3) and personality traits such as coping styles (4) and ego resilience (5). The goal of this study was to examine the relative contributions of these individual-level factors to reported chronic stress and trauma symptoms in medical students.

Methods: Fourth year medical students from an urban Canadian medical school participated in the study. They completed the Perceived Stress Scale (PSS) and the Impact of Events Scale-Revised (IES-R: measure of posttraumatic stress symptoms). Students also completed the Ego Resiliency Scale (capacity to adapt one's control to situational demands), the Social Provisions Scale (perceived social support), the Coping Inventory for Stressful Situations (thoughts and behaviours to manage stressful situations) and a demographic survey assessing age, gender, relationship status, debt level, prior education level, and the number of positive life events and major stressors encountered in the previous year. Separate stepwise regression analyses were conducted with the total scores on the PSS and the IES-R as the dependent variables, and the remaining measures as the predictor variables.

Results: One hundred and sixteen students, out of a possible 200, participated in the study (response rate: 58%). Emotion oriented coping (e.g. focusing on, and venting of, emotions) and ego resilience (e.g. more likely to endorse statements such as "I like to do new and different things") significantly predicted students' reported stress levels, explaining 39% of the variance in PSS scores (p<.01). Students high in emotion-oriented coping were more likely to report higher levels of chronic stress (standardized beta coefficient = .56, p< .01). Students high in ego resilience were less likely to report higher levels of chronic stress (standardized beta coefficient = -.16, p<.05). Emotion oriented coping and perceived social support significantly predicted students' reported trauma levels, explaining 38% of the variance in IES-R scores (p<.01). Students high in emotion-oriented coping were more likely to report trauma symptoms (standardized beta coefficient = .55, p< .01). Students high in perceived social support were less likely to report trauma symptoms (standardized beta coefficient= -.17, p<.05). Prior education level, age, debt level, number of positive events or stressors were not significant predictors of reported chronic stress or trauma levels.

Discussion and Conclusion: Individuals who habitually use emotion-oriented coping appear vulnerable to chronic stress and trauma symptoms. In contrast, students who are high in ego resilience and who perceive greater social support are less likely to report chronic stress or trauma symptoms. Findings from this research can inform the development and delivery of wellness interventions targeted to individuals vulnerable to the stressors encountered as part of medical training.

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7F Short Communications: Assessment: Feedback

Location: Chamber Hall, PCC

7F/1
Evaluating two feedback mechanisms for MCQ exams

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Background: Students generally regard feedback as essential. Feedback research often focuses on clinical/simulated clinical contexts, but a large proportion of medical assessment is delivered via MCQ exams and students repeatedly request personalised feedback from them. We must develop effective feedback mechanisms for such exams.
Summary of work: In a first year cardiovascular module students sat one of two 30 minute formative exams. Group one spent 15 minutes after the exam reviewing their answers and viewing detailed feedback explaining why each option was correct or incorrect. Group two received domain level information on their performance in absolute terms and relative to the class, which they could take away. Three weeks later they sat a second 30 minute formative exam after which all students received domain level information and reviewed their answers. Assignment to the conditions was randomized.
Summary of results: Both methods were extremely popular. By comparing performance change across exams we evaluated the efficacy of the techniques. By comparing the results to the previous cohort's performance on the same formative exam – then sat in a single sitting – we could evaluate both against a no-feedback baseline. We are monitoring group performance to see if differences emerge in summative exams.
Conclusions: It is possible to routinely and effectively deliver MCQ exam feedback in a way that is personalized and relevant to students.
Take-home messages: Developing robust and cost-effective feedback mechanisms appropriate to MCQ exams is important to improve student satisfaction and increase student performance. The educational impact of such techniques will vary.

7F/2
Clerkship feedback content is focused on 'good points' and lacks specificity

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Background: Medical schools often demand students to ask frequent for feedback during clerkship. Therefore, supervisors need to fill out a specific form in a feedback note book which belongs to the student. Staff and residents are not always motivated to provide feedback due to time constraints. On the other hand, students do not always ask for feedback. They feel troubled to 'disturb' supervisors. The central question in this study is: given these circumstances how complete are feedback forms filled out, and how specific is the provided feedback?
Summary of work: Feedback note books from 36 students were collected. These students were required to have a total of 292 completed feedback forms. With a mixed method approach the research questions are answered. Instruments were developed a) to determine the completeness of the forms and b) to analyze the specificity of the content of the written feedback.
Summary of results: From the required forms 178 (61%) were empty. 74% of the filled out forms were complete. Woman filled out more complete forms. Information about 'good points' was often completely filled out, contrary to information about 'points for improvement' and 'suggestions'. The given feedback points lacked specificity. We found significant differences in specificity among disciplines, gender and seniority (residents - staff) (p <0.05). Female residents gave most specific feedback.
Conclusions: Students could more benefit if they asked more often feedback, and if supervisors put effort in formulating points for improvement and suggestions in a specific manner.
Take-home messages: Completed feedback forms and specific feedback content lead to rich feedback.

7F/3
Factors influencing trainers' feedback-giving behaviour

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Background: The literature provides some insight into the role of feedback givers, but little information about factors influencing 'feedback-giving behaviours'. We looked for relationships between characteristics of feedback givers (self-efficacy, task perception, neuroticism, extraversion, agreeableness and

conscientiousness) and elements of observation and feedback (frequency, quality of content and consequential impact).

Summary of work: We developed and tested several hypotheses regarding the characteristics and elements in a cross-sectional digital survey among GP trainers and their trainees. We conducted bivariate analysis using Pearson correlations and performed multiple regression analysis.

Summary of results: Sixty-two trainer-trainee couples from three Dutch institutions for postgraduate GP training participated in the study. Trainers' task perception and neurotic personality correlated positively with frequency of feedback and quality of feedback content. Multiple regression analysis supported positive correlations between task perception and frequency of feedback and between neuroticism and quality of feedback content. No other correlations were found.

Conclusions: This study contributes to the literature on feedback giving by revealing factors that influence feedback-giving behaviour, namely neuroticism and task perception. Trainers whose task perception included facilitation of observation and feedback (task perception) and trainers who were concerned about the safety of their patients during consultations with trainees (neuroticism) engaged more frequently in observation and feedback and gave feedback of higher quality.

Take-home messages: Trainers with a more neurotic personality and trainers with a task perception towards the organization of observation and feedback observe more and give better

7F/4
Engaging with Constructive Feedback when Separated from Summative Assessment: The RHIME Experience

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Kendall Ho (University of British Columbia, eHealth Strategy Office, Vancouver, Canada)

Background: Medical faculty and trainees report difficulty engaging in the exchange of constructive feedback while simultaneously validating its importance and promoting its increased use.

Summary of work: Qualitative content analysis of focus group transcripts was used to explore the experience of third year medical students receiving feedback as part of a pilot project named RHIME (Remote Hands-On Interactive Medical Education). Focus groups were conducted as part of the evaluation of this design-based research project developed to provide medical students completing a 12 month longitudinal integrated clinical clerkship under the supervision of rural family medicine doctors in remote regions with access to clinical skills feedback from university-based general internists.

Summary of results: Students described four properties of the project that may have supported the ongoing exchange of constructive feedback. These include 1) deliberate practise during dedicated practice time separate from clinical duties 2) the use of videos to exchange feedback 3) a dedicated coach with the sole role of providing formative feedback on clinical skills and 4) exclusively formative feedback.

Conclusions: Students willingly engaged in the exchange of constructive feedback when its focus was on developmental improvement as part of a longitudinal relationship with non-supervisory faculty. Future research could explore the conflation of summative and formative assessment in our curricula designs as a contributing factor to the pervasive dissatisfaction with the exchange of constructive feedback by both trainees and faculty.

Take-home messages: Students welcomed constructive clinical skills feedback but opposed combining formative feedback with summative assessment.

7F/5
Skype as a tool to provide feedback to resident learners

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Background: Providing feedback to learners after completing Standardized Patient (SP) exercises is a common practice in medical education. Written and verbal feedback have been the traditional methods for providing feedback.

Summary of work: The National Board of Osteopathic Medical Examiners (NBOME) has developed a formative assessment of communication skills using Remote Standardized Patients (RSPs) and a web-based communication interface (Skype). Each encounter includes a 15-minute doctor-patient communication task using Skype, a 5-minute self-assessment exercise, and a 10-minute debriefing and verbal feedback exercise. The program was pilot tested with 59 resident physicians from around the United States, each of whom completed four cases, totaling 236 encounters. After program participation each study participant (RSPs and residents) completed a 53-item web-delivered questionnaire and participated in focus group discussions.

Summary of results: Ninety-nine percent of residents agreed or strongly agreed that receiving feedback via Skype was valuable. During 10 resident focus groups it was consistently viewed as the most valuable aspect of the program. RSPs reported that the web-based format for providing feedback was effective in their focus group, and RSPs revealed some challenges they encountered as well as opportunities.

Conclusions: User acceptance for this web-based communication exercise using RSPs was high, and both resident and RSP participants valued the feedback component. Such e-learning initiatives may benefit students, residents and practicing in the future.

Take-home messages: As a web-based communication tool, Skype provides a potential tool for providing effective feedback to learners after completing communication exercises.

7G Short Communications: The Curriculum

Location: Conference Hall, PCC

7G/1

Assessment of a Biomedical Informatics course for medical students at UNAM Faculty of Medicine in Mexico

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Background: Biomedical Informatics (BMI) is an emerging discipline that is starting to be incorporated in medical training programs. There are few published experiences of implementation and assessment of BMI courses in medical schools. UNAM Faculty of Medicine in Mexico is the largest medical school in Latin America, and has included BMI in its undergraduate program.
Summary of work: Two one-semester courses (BMI-1 and BMI-2) were designed for the first two years of the curriculum. BMI-1 includes core conceptual notions and practical aspects of informatics applied to medicine (medical databases, electronic health record, telemedicine, among others), and BMI-2 embodies medical decision making and clinical reasoning. This study reports an assessment of the 2012 BMI-2 course with a one-group pretest-posttest knowledge exam and an opinion questionnaire. The test was a 40-item multiple-choice question instrument, which included mostly items targeted to application and problem-solving levels.
Summary of results: This paper focuses on the assessment of the 2012 BMI-2 course, which was one semester long, with 16 two-hour sessions. We used a blended-learning model, with 60 teachers and 1,160 students in 41 groups. Pre-post test assessment of knowledge showed an improvement (Cohen's d effect size=1.6). The program had a positive evaluation by students and teachers.
Conclusions: Health care professionals need to acquire BMI competencies, this report shows that a BMI course increases knowledge and produces a satisfactory educational experience in medical students.
Take-home messages: BMI teaching in medical schools is necessary, formal courses need to be developed, integrated in the curriculum and evaluated. Effective use of BMI concepts is essential for modern healthcare professionals.

7G/2

In the Name of Health: Doctors' advocacy on behalf of the vulnerable

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Background: While health advocacy is one of the seven core roles Canadian physicians are expected to fulfill, it is to conceptualize, quantify, and teach. A literature review was conducted to trace the emergence of health advocacy in medical practice and to identify ways in which the advocate role is utilized by academics, physicians, and the public.
Summary of work: Utilizing the FACTIVA database and searching for key terms (doctor*/physici* AND adcoca*/activis*) the author identified and collected all newspaper articles referring to or interviewing physician advocates in Canada (1984-2012). Using qualitative analysis software (INVIVO10) to organize the data, the author analyzed the content of the newspaper articles and identified the ways in which the advocate role appears in public discourse and academic debates
Summary of results: The emergence of the Advocate Role in the Canadian medical education context can be traced to the early 1980s. The definition and scope of doctors' advocacy work has been heavily debated in medical journals. Health Advocacy work, when woven into medical practice, has the potential to blur the lines between the performance of scientific and professional expertise and the personal political positions of physicians. Yet, it is a source of social legitimacy.
Conclusions: Through targeted political action and the active exercise of citizenship, physicians enhance the social legitimacy of their profession. Advocacy work establishes direct links between the profession and society by serving as a source of practical expertise for social ills.
Take-home messages: Physicians' participation in social causes enhances both public discourse and the profile of the profession in society.

7G/3

Prescribing in practice: the impact of simulated prescribing once students become doctors

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Background: Many newly qualified doctors lack confidence in prescribing and a recent GMC investigation found an 8.4% error rate. In 2011-12, a series of simulated prescribing tutorials were delivered to a cohort of final year medical students; there was a reduction in prescribing errors and improved prescribing confidence). The aim of this study was to assess the impact of the tutorials now these individuals are prescribing in practice.
Summary of work: Of the 35 students who undertook the tutorials, we contacted those for whom we had a forwarding email address (n=23) with an online questionnaire. There were 13 respondents (57%), all of whom were practicing as junior doctors. Questions comprised semantic differential scales and free text boxes. We also collected confidence scores from 11 FY1 doctors who had not received the tutorials. Descriptive statistics and qualitative analyses were performed.
Summary of results: Mean scores for the impact of the tutorials on prescribing confidence and safety were 5.2/7 and 5.8/7 respectively. For anaphylaxis, confidence was higher amongst FY1 doctors who had received the tutorial compared to those who had not (p=0.008). For the other topics, there was a trend in this direction (p=0.068-0.926). Qualitative analysis showed that students were less confident with drug interactions and prescribing in renal failure.
Conclusions: Use of simulated prescribing tutorials during the final year of medical school improved prescribing confidence amongst newly qualified doctors.
Take-home messages: Low-fidelity simulated prescribing tutorials create a safe and effective environment in which to practice this key skill.

7G/4

Implication of Evidence-Based Medicine into Health Promotion Teaching Block for Medical Students

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Background: Evidence-based medicine (EBM) is well-known among health professionals for their practices. Although health promotion is promoted worldwide, there is a debate whether EBM is needed in health promotion. This study aimed to assess the utilization of EBM into health promotion block among medical students.
Summary of work: A comparative study was conducted among the 4th-year medical students in 5-week health promotion block at Prince of Songkla University, southern Thailand. All 135 students were divided into two groups: one-week EBM integrated in the first week of block (1st group) and in the last week (2nd group). Self-reported questionnaire including knowledge and skills in terms of questioning health problem, searching evidence and appraising identified evidence and the application of EBM into health promotion and in future practices was rated by medical students before and after EBM. Sixteen faculty members evaluated the student's group presentation of their project on health promotion at the end of block. All evaluation items were rated into from 1 (lowest) to 5 (highest). Data were analyzed using t test or wilcoxon test as appropriate.
Summary of results: Baseline self-report by students before EBM between two groups were similar. Knowledge and skills on EBM and application of EBM into health promotion block and future practices were increased significantly (p<0.001). Both groups of students did not rate differently. Faculty members rated higher scores for the 1st group than the 2nd group for topic of interest, searching for evidence-based information, critical appraisal of evidence before using it and their applied knowledge but the significant difference could not be identified.
Conclusions: Evidence-based medicine was useful not only in clinical practices but also in health promotion. Future development and evaluation of well-assessed tools for its application is required.
Take-home messages: Evidence-based medicine was useful not only in clinical practices but also in health promotion.

7G/5

Impact of an Evidence Based Medicine curriculum focused on inquiry and searching in a medicine clerkship

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Background: Evidence Based Medicine (EBM) is a common component of medical curriculum. Yet, research has demonstrated limited curricular coverage of EBM's first two steps: formulating clinical questions and literature searching, which are essential to engage in EBM.
Summary of work: At University of Ruhana, Sri Lanka we designed and implemented a 10-hour interactive EBM module held over several weeks to develop clerkship students' inquiry and search skills. Prior to training, students completed a portion of the inquiry component of the Fresno Test and completed an 11-question EBM knowledge, skills and attitudes questionnaire. During training, students were prompted to formulate questions related to their patients and to search for

applicable evidence. Found evidence was assessed using the Fresno Test guidelines for literature searching. Post training, students re-took the Fresno Test inquiry component and questionnaire.

Summary of results: Sixty-four students completed the preliminary survey, the module and post-test. Following EBM training, all students reported increased skill in formulating clinical questions and 97% felt competent searching for evidence. These self-evaluations were confirmed by empirical measures. Pre and post mean scores, (out of maximum 3) 1.02 (SD.24) and 2.45(SD.74)(P <0.001). Fifty-eight students (90%) completed literature search and 78% achieved competency. Ninety-eight percent of students reported feeling motivated to use EBM presently and in the future.

Conclusions: This EBM training module, focusing on clinical question formulation and literature searching, increased students' confidence in their clinical inquiry and search skills. Development of EBM education should include targeted training in these key domains.

7G/6
The attitude of Saudi Medical Students towards learning alternative Medicine

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Background: Alternative medicine is defined as a broad set of health care practices that are not part of that country's own tradition and are not integrated into the dominant health care system (WHO). In Saudi Arabia there are large multiple geographical areas which lead to many alternative medicine practices, but how does the new generation of medical students look to these practices and how interested are they to know about them?

Summary of work: A web-based questionnaire was developed and posted on a Saudi Medical Student Society group on the internet. It has 10 questions but only 2 will be analyzed for this presentation.

Summary of results: 60% of the participants agreed or strongly agreed to have alternative medicine as an elective course. 47% of the participants agreed to have it as a mandatory course while 26% disagreed to have it as a mandatory course.

Conclusions: There is tendency of the participants to have alternative medicine as an elective course in addition to the current curriculum.

Take-home messages: Alternative medicine needs a serious consideration in the medical school curriculum planning to make use of the knowledge and experience in this field.

7G/7
Effect of the Bologna bachelor degree on considerations of medical students to interrupt or terminate their medical training

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Background: The Bologna declaration for higher education in Europe describes the introduction of a two-cycle system, that forces higher education programs to split into two phases: a bachelor program and a master program. This system, introduced in medical schools by 7 of the 47 Bologna countries, potentially enables medical students to stop after obtaining a bachelor degree or to temporary interrupt their medical training. A survey at the time of introduction of this model in Dutch medical education showed little interest among students in these possibilities. Now that this system is well established, a new survey was conducted.

Summary of work: Questionnaires were sent to 314 second year and 348 third year medical bachelor students and 256 first year master students at Utrecht Medical School in 2012. Both the bachelor and the master program have a duration of three years in all Dutch medical schools.

Summary of results: Response rates were 33.4% for the second year and 42.0% for the third year bachelor students and 48.8% for the first year master students. Of all these students, 1% to 3% seriously considered a permanent stop. Of the bachelor students about one quarter seriously considered a temporary stop after finishing the bachelor program. Of the master students one seventh indicated that they actually took a break at that opportunity.

Conclusions: These results are comparable to the results of the survey at the time of the introduction of the bachelor-master system.

Take-home messages: Awarding the bachelor degree does not particularly encourage students to discontinue or interrupt their medical study.

7H Short Communications: Competency Based Education/Outcome Based Education 1 – Postgraduate

Location: Club H, PCC

7H/1
Using narrative descriptions as data to document learners' progress on milestones: a practical response to the Next Accreditation System

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Background: The ACGME's Next Accreditation System (NAS) requires graduate medical education programs in the United States to document learners' progress toward competence in areas defined by milestones. Pediatric programs must document 21 milestones biannually.
Summary of work: Steps to develop a milestone documentation process: 1) Review data from existing rating scales/comments. 2) Consider data options: Provide rating scales for 21 required or 51 all-encompassing milestones to faculty; Provide rating scales for subsets of milestones to various faculty members; Request comments about listed milestones; Request descriptions of work observed in clinical settings. 3) Develop a Descriptive Comments (DC) form to collect narrative data (written descriptions of work observed with feedback). 4) Match DCs to milestones. 5) Identify milestones with insufficient data. 6) Compare summaries to residents' self-assessment. 7) Reflect; discuss; plan future learning.
Summary of results: Rating scales and general comments provide insufficient data to assign residents to positions on milestones. Rating residents' performance on 21 or 51 milestones is unwieldy for clinical teachers. Dividing milestones for rating among faculty limits the scope of data and provides no context that indicates why a milestone position was selected, while creating a challenge of calibrating faculty. Descriptive data facilitate discussion, reflection and learning goals. When matching DCs to 21 required milestones many comments do not match. Matching DCs to all 51 milestones captures all comments. After matching DCs to milestones, core faculty can review comments under each milestone to assign positions.
Conclusions: Narrative data can be matched to milestones to fulfill NAS requirements and provide meaningful feedback to residents.
Take-home messages: Descriptive comments document progress and facilitate learning.

7H/2
Making a teaching demonstration film: a method to improve the skill in teaching ACGME Competencies

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Background: Education committees in charge of assessing teachers to fill education position vacancies require a way to assess their candidates. The assessment results are intended to serve as evidence of the teacher's skill and allow these potential candidates to see whether the potential teacher's style is a good match for their educational institution.
Summary of work: We trained the potential candidates in a general internal medicine ward to become the teachers in ACGME competencies. After the training program, they all requested to make a film to demonstrate the way how to teach the residents to have competencies in patient care. In a feedback conference, trainers communicate their ideas about education skills. The outcome was candidates' satisfaction degree.
Summary of results: Of the 37 candidates, 95% of them agreed that they become more confident in teaching after making the teaching demonstration film. The satisfaction degree was 97% after conducted the assessment skill.
Conclusions: The method is intended to be a comprehensive approach. The elements of performance are more appropriately evaluated using qualitative models. These emphasize observation, behavior or performance as the evaluation context, and the value of subjective human interpretation in the evaluation process.
Take-home messages: Making a teaching demonstration film is a good way to understand the candidates' ability in teaching ACGME competencies – Professionalism, Patient Care, Practice-based learning and improving, Medical Knowledge, Communication Skills and System Based Practice.

7H/3
Comprehensive Family Practice Review: Using the CanMEDS Competencies Framework for Curriculum Development

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Background: The Comprehensive Family Practice Review (CFPR) Program was developed to equip family physicians and general practitioners with the knowledge, skills, expertise, and judgment to provide high quality 21st century care to patients in family practice. This program is of particular value to physicians intending to re-enter or change their scope of practice to family medicine as well as physicians looking for a comprehensive update in family practice.
Summary of work: Innovative application of the CanMEDS-FM framework was used to develop the integrated CFPR curriculum. The CFPR is composed of two components including 5 residential weekends of small group learning based on therapeutic themes over nine months interspersed with preparatory work and professional reflection, practice application exercises, and collegial coaching
Summary of results: The CFPR Program has been extensively evaluated and participants learning outcomes have been assessed at longitudinally at multiple levels over the past three years.
Conclusions: Outcome assessment confirmed the exceptional curriculum design and successfully applied continuous professional development nature of the CFPR program resulting in a change in practice.
Take-home messages: After active engagement in the CFPR Program, participants will be better able to: Improve the quality of their approach to managing clinical conditions. Use technology to answer clinical questions effectively. Demonstrate better patient-centred care. Collaborate and communicate more effectively with others in the healthcare system. Develop a self-directed approach to life-long learning and professional development.

7H/4
Postgraduate competency-based curriculum in internal medicine: Pilot study of clinicians' definitions and perceptions of CanMEDS roles and physicians' competencies

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Background: The new Swiss postgraduate medical training largely gets inspiration from the "CanMEDS framework". Since controversy exists regarding transferability of general competencies in different social and political settings, we undertook to determine, in the Swiss internal medicine (IM) hospital setting, 1) how front-line clinicians define competencies expected of residents at the end of their postgraduate training , 2)

how they weight the importance of roles defined in the CanMEDS.
Summary of work: Mixed qualitative-quantitative study, among a purposive sample of faculty, chief residents, and residents at two large urban IM departments in Switzerland. 33 physicians participated in six semi-structured focus groups and completed a questionnaire. Transcriptions of tape-recorded discussion were coded by two independent researchers. We used for the analysis a partial "Grounded theory" approach.
Summary of results: Participants: 9 attending/faculty, 13 senior residents or chief residents and 11 junior residents. Participants' definition of competence included statements amenable to all seven CanMEDS roles. No new role emerged. Nevertheless when exposed to the Canadian definitions, physicians weighted the "Medical Expert", "Communicator", "Collaborator", "Professional" and "Scholar" roles as most relevant to an in-patient internal medicine rotation. Conversely items which define the "Manager" and "Health Advocate" roles were judged as least relevant. Qualitative and quantitative analyses support both those findings, independently from the physician status.
Conclusions: The use in the context of Swiss internal medicine of the Canadian framework CanMEDs is possible and meaningful. Nevertheless, adjustments are needed in the description of some roles and competencies in order to make them fully acceptable and understandable for both the trainees and the clinical supervisors.
Take-home messages: The CanMEDS framework is transferable in contexts other than the Canadian.

7H/5
Aligning Accreditation along the Medical Education Continuum for Excellence in Residency Training

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Background: The Future of Medical Education in Canada - Postgraduate recommendation ten is "Accreditation standards should be aligned across the learning continuum beginning with undergraduate medical education (UGME) and continuing through residency and professional practice, designed within a social accountability framework, and focused on meeting the healthcare needs of Canadians".

Summary of work: The key transformative action is to facilitate and enable a more integrated postgraduate medical education (PGME) system by aligning accreditation standards and processes across the continuum of learning in the UGME, PGME, and continuing professional development (CPD) environments. Accreditation bodies are working collaboratively to develop a rigorous effective and efficient accreditation system with outcome-based standards and streamlined processes aimed at maintaining excellence in medical education.

Summary of results: The leadership from the Committee on Accreditation of Canadian Medical Schools, the College of Family Physicians of Canada, the Collège des médecins du Québec, the Royal College of Physicians and Surgeons of Canada, the Committee on Accreditation of Continuing Medical Education and Accreditation Canada have established a Working Group to develop a thematic map of UG, PG and CPD standards and perform a comparison of policies and processes to determine opportunities for alignment. The thematic map of standards and comparison of policies and processes will be presented as well as an update of the activities of the working group.

Conclusions: The Working Group will also review current best practice in accreditation, focus on developing outcomes based standards and requirements for documentation and ensure processes have a continuing quality improvement focus.

Take-home messages: This may prove to be an excellent model of collaborative leadership between organizations with a common goal.

7H/6
How Faculty Entrust Residents with Appropriate Autonomy

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Background: In preparing to assume professional responsibility, residents strive to independently manage their patients, while the attending varies between supervision and allowing autonomy (ten Cate, 2006). The objective is to study how attendings effectively entrust residents.

Summary of work: This study was part of a qualitative study in emergency medicine. Four focus groups of faculty/residents were conducted. Transcriptions from audio recordings were then anonymously coded using ground theory.

Summary of results: Analysis of the transcripts yielded themes illuminating how faculty entrust. 1) Shared ownership- "I view [attendings] as consultants and I'm managing the patient and I have a frank conversation

and I say this is what I want to do." 2) Comfort with not having control- Residents appreciate when faculty avoid solely directing care and micromanaging. "Certainly there are attendings that will walk in the bay and sit down and watch you do your thing and not really say anything if you're doing okay." 3) Stealth observation- Some faculty "Try to hide in plain sight [...] pretending to do something else or - just listen and sort of spy." 4) Coaching- "I have your back, and I will make sure that I will get you there in the end, and I will let you make your mistakes." 5) Resident Control- effective faculty allowed the resident to take control rather than having the resident adjust to the attending's style.

Conclusions: There are themes for faculty entrustment to guide actions.

Take-home messages: Faculty can effectively and safely entrust residents by modeling the themes described especially coaching and shared ownership with appropriate guidance.

7H/7
How trust, trustworthiness and entrustment relate to the concept of EPAs

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Background: Physicians have to decide frequently whether a resident is capable of performing independently a specific professional activity. The term "entrustment" is a key component in this process, which is why ten Cate (2005) identifies clinical tasks as "entrustable professional activities" (EPAs). Only a small number of studies have investigated so far factors that can influence the decision to entrust.

Summary of work: Aim of this work is to clarify the definition of the terms trust, trustworthiness and entrustment, and to determine how these terms are interrelated. Understanding of their interconnection is essential to detect and characterize factors that potentially impact on the medical entrustment process.

Summary of results: A model was developed in which the perceived trustworthiness of a medical trainee, together with factors inherent in the supervisor, influence the supervisory decision to trust the medical trainee. This trust, together with environmental factors and the nature of the EPA, affects the decision to entrust the professional activity to the medical trainee.

Conclusions: The model proposed illustrates broadly the interaction of factors that influence the entrustment process. On this basis, it will be the aim to identify and characterize empirically variables and their interactions that affect trust and trustworthiness of medical trainees.

Take-home messages: A model is proposed to support understanding and further definition of the process that

results in the entrustment of professional activities in medical education.

7I Short Communications: Postgraduate Education 2
Location: Club A, PCC

7I/1
Developing generic skills during residency: A novel specialty-specific approach

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Background: Generic skills development is accepted as one of the essential components of higher education. In medical education, it is always aimed to develop these skills in the undergraduate phase. However, with the perspective of continuum in medical education they also have been a part of postgraduate training.
Summary of work: Looking at the national residency education framework in Turkey (endorsed by Specialty Education Council) and taking the examples of CanMEDS and ACGME into account, generic skills outcomes in residency education were listed. The list, consisted of 25 items was sent to 450 residents who work in the same university hospital. How important they accept each item as a part of their profession on a Likert scale [from 1 (unnecessary) to 5 (very important)] and their further comments about each item were asked.
Summary of results: None of the residents chose unnecessary option for any item. The answers generally ranged from moderate (3) to very important (5). There were occasional not important (2) answers by some residents to some items which was not significant. Interestingly, qualitative analysis of comments for each item showed differing standpoints for residents of different specialties
Conclusions: There is a strong consensus among residents about the generic skills that a medical professional should possess. However, context of each generic skill for different specialties vary considerably among its members.
Take-home messages: It is important to develop generic skills during residency. A common program does not fit for all specialty trainings. Specialty specific approach should be applied.

7I/ 2
Variation in the Contemporary Hidden Curriculum in Graduate Medical Education

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Background: There is a renewed interest in cultivating compassionate patient-centered care among residents.The erosion of professionalism can be attributed to the "Hidden Curriculum."
Summary of work: We identified eight areas in the literature where the Hidden Curriculum exerts influence on trainees and faculty in Graduate Medical Education (GME), which include: Lack of Accountability, Legal Phobia, Physician and Nursing Overload, Negative Attitudes from Teachers, Electronic Health Record (EHR) and Patient Depersonalization, "Work-Life" Balance, "Difficult Patients," and Evidence-Based Medicine on a Patient-Centered Approach. We designed a non-validated 32-question survey tool to assess residents' attitudes towards the Hidden Curriculum. Statements were pooled into groups of consensus and disagreement.
Summary of results: 105 of 171 (61.4%) residents from six specialties (Internal Medicine, Surgery, Pediatrics, Emergency Medicine, Obstetrics/Gynecology, and Psychiatry) participated in the survey. We reported specialty specific differences. Surgery residents more likely to break the duty hours regulation for patient care.(3.2 vs. 4.1, p<0.05). Internal Medicine residents believe that they practice less defensive medicine compared to their peers (3.6 vs. 4.5, p<0.05). Pediatrics residents were more likely than the other cohorts to trust the attending's opinion more than evidence-based medicine in patient care decisions (4.9 vs. 3.9, p<0.05). Obstetrics/Gynecology residents practice patient advocacy more than peers (4.25 vs. 3.0, p<0.05). Emergency Medicine residents enjoy their work-life balance (6.2 vs. 3.5, p<0.05).
Conclusions: The effects of Hidden Curriculum were identified among residents, many of which were specialty-specific. Residents appear to have chosen their specialty based on work-life balance.
Take-home messages: Residents view themselves as accountable to patients despite the transition to new duty hours regulations.

7I/3

Resident Perceptions on Rewards and Challenges of Caring for Ambulatory Patients with Chronic Illness

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Background: Many residents care for patients in a traditional environment, with suboptimal continuity of care and episodic, acute interventions. The complexity of patient care in a short ambulatory care visit may not provide enough time for the provider to discuss longitudinal components of their diseases.

Summary of work: A prospective qualitative study at 3 Academic Health Centers was conducted from October 2011 through February 2012. Focus groups were conducted with Internal Medicine residents during their ambulatory block rotation using qualitative analysis to identify themes.

Summary of results: Discussions produced 224 comments, categorized in 5 domains and 36 themes. Twelve (12) themes related to perceptions of challenges in providing care. Eight (8) focus on strategies to improve the patient experience. Strengths of the residency program were identified in 7 themes. Six (6) related to ways for improving learning about caring for patients with chronic illness in the ambulatory setting and 3 themes related to perceptions of rewards in providing care.

Conclusions: Residents perceive both challenges and rewards in caring for patients with chronic illness in the ambulatory setting. They identify barriers in caring for their patients, from both the provider and patient's perspectives. It's critical to account for resident's perspectives during curriculum development for the care of patients with chronic illness in the ambulatory care setting.

Take-home messages: Residents develop strategies to provide effective care for their patients and make suggestions for improving the residency clinic.

7I/4

Teaching and Assessment Toolkit to Integrate the Collaborator Role in Residency Training

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Background: Graduating physicians are expected to be able to competently collaborate with patients, families and interprofessional teams. Collaboration involves elements such as learning when and how to share power and information, knowing how to prevent misunderstanding and manage difference, and knowing how to work efficiently and effectively in teams

Summary of work: Given the absence of 'ready for use' learning, teaching and assessment tools, the authors adapted and developed a toolkit for use by faculty and residents to develop collaborator competencies in residency education.

Summary of results: This short communication will explore how the development of a learning, teaching and assessment resource which aims to support the development of the intrinsic role of Collaborator was beneficial in areas such as: selecting and prioritizing appropriate collaborator competencies to teach residents in your program; applying new approaches and tools for teaching collaborator competencies to residents in their discipline (i.e. including bedside and clinical teaching approaches); and applying new approaches and tools for the assessment of collaborator competencies to residents in their discipline (i.e. including bedside and clinical teaching approaches).

Conclusions: Learners are frequently, and repeatedly, transitioning to new locations or units where they are expected to seamlessly interact in teams in order to provide optimal care to patients and families. The underlying concepts, skills and attitudes needed to collaborate efficiently and effectively are challenging to teach and difficult to assess.

Take-home messages: The collaborator toolkit provides a practical and educational starting point for faculty development of teachers and educational planners.

7I/5

Learning behaviours and preferences of Canadian family medicine residents outside of the clinical setting

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Background: Learning is maximized when there is concordance between education formats and residents' learning preferences. However, little is known about residents' actual learning activities outside of the clinical setting. Thus, the objective of this study is to characterize family medicine residents' learning behaviours and preferences outside of the clinical setting.

Summary of work: Retrospective descriptive analysis of mandatory academic learning logs submitted by family medicine residents (as part of their academic program requirement) enrolled at Western University between 2008 and 2011.

Summary of results: Seventy-two residents completed their academic requirements during the study period and logged a total of 25068 hours of academic learning. Residents chose to spend the majority of their academic time self-studying (43.8%), in staff's teaching sessions (20.2%) and in conferences/courses/workshops (12.2%). Textbooks (26.4%), medical journals (20.1%) and point-of-care resources (12.3%) were the three most common resources used for self-studying. The hospital (32.3%), residents' homes (32.1%) and family medicine clinics

(14.3%) were the most frequently cited locations where academic learning occurred. While all physicians used a variety of educational activities, most residents (69.4%) chose self-studying as their primary method of learning. The topic for academic learning appeared to have some influence on the learning modalities used by residents.
Conclusions: Residents used a variety of learning modalities and chose self-studying over other more traditional modalities such as lectures for most of their academic learning.
Take-home messages: A successful academic program must take into account residents' varied learning preferences and habits while providing guidance and training in the usage of more effective learning methods and resources to maximize educational outcomes.

7I/6
Trainees'perception of negative verbal feedback in Obstetrics and Gynaecology

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Background: Bullying and harassment is a serious problem in the specialty of Obstetrics and Gynaecology. There is anecdotal evidence that bullying starts as verbal negative feedback in the specialty of Obstetrics and Gynaecology. Objective was to evaluate the trainees' perception of negative verbal feedback in Obstetrics and Gynaecology.
Summary of work: A survey with cross sectional research design involving 594 Obstetrics and Gynaecology trainees in London. A thematic analysis of the data are presented.
Summary of results: 115 questionnaires were returned. Analysis of open questions demonstrated two candidate themes - trainees' perception of negative verbal feedback and demotivation. In the candidate theme of trainees' perception of negative verbal feedback, the sub themes were lack of care, respect and support, unfair behaviour, manner of giving feedback and bullying and harassment.
Conclusions: It is interesting that many trainees perceived negative verbal feedback as bullying and harassment. Negative feedback in the form of lack of respect, care and support, unfair behaviour, bullying and harassment goes against the principles and ethos of establishment of "practice" and "identity". The trainers in Obstetrics and Gynaecology have to address the issue of delivery of negative verbal feedback so that this is not perceived as lack of care, respect, support, unfair or bullying and harassment by the trainees.
Take-home messages: The trainers face a challenge on how best to deliver critical feedback. This may have an implication for the Royal Colleges, and trusts, how best to train the trainers to meet this challenge.

7I/7
Getting STARTed: the impact of a foundation level critical care course on subsequent patient management

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Background: Systematic Training in Acute Illness Recognition and Treatment in Surgery (START) was developed by the RCS and is aimed at newly qualified doctors looking after surgical patients as 'first responders'. It comprises e-learning modules, a one day interactive face to face session and pre- and post-course assessment of knowledge and learning, providing a structured 3 stage approach to managing patients, along with peer group learning and senior support to improve communication, planning and basic decision making. The aim of this study was to assess whether the participants thought the course had impacted upon their subsequent clinical practice.
Summary of results: To date, 447 trainees have completed the programme; levels of knowledge have increased following the course (Mean pre- and post-course scores 66% and 70% respectively, $p < 0.05$) and immediate feedback has been positive, with 83% being satisfied or very satisfied with the course overall. A sample (n=88) of participants from the last year was surveyed: 35 responded (40%). All respondents who have since cared for an unstable surgical patient reported having used the START process and that it had made them feel more confident in their role. 89% felt that START had been an essential part of their training so far and 97% felt that it should be offered to all newly qualified doctors caring for surgical patients.
Conclusions: Our evidence shows that a blended learning programme like the START course is an effective way of preparing newly qualified doctors to care for surgical patients by improving knowledge and clinical confidence.
Take-home messages: All Foundation Year 1 doctors doing a surgical post should do START.

7J Short Communications: Preparation for Practice 2
Location: Club E, PCC

7J/1
Exploring medical students' perceptions on preparedness for becoming a first year graduate doctor after undertaking a prolonged assistantship

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Background: Adequate preparation is essential for a smooth transition from medical student to junior doctor. The GMC expects students to have undertaken a period of 'shadowing' Foundation trainees. Sheffield Medical School responded to this by initiating a six week student assistantship following finals. This qualitative study aims to explore the perceptions of students on their preparedness for clinical practice following the assistantship.
Summary of work: Students undertaking the assistantship completed a brief questionnaire regarding their anxieties towards their FY1 year. Subjects were purposefully sampled and 20 participants underwent semi-structured interviews. Interviews were transcribed verbatim and thematic analysis conducted.
Summary of results: The majority described a positive experience, felt they were given appropriate responsibilities and were well integrated into their teams. The most commonly reported anxieties included risk of causing harm, prescribing errors, overwhelming workload and general doubts concerning overall competence. In terms of the assistantship, discussion centred around: learning goals, consultant supervision, prescribing, and managing acutely unwell patients.
Conclusions: Medical student assistantships enable gradual and monitored stepwise allocation of responsibility, superior to the previous 'in at the deep end' approach. To maximise the benefit of the placement students should create reflexive goals for their learning, a precursor to postgraduate reflective practise. Teaching sessions must be tailored around topics that cause most anxiety, particularly prescribing and the acutely unwell patient.
Take-home messages: Assistantships improved students' sense of preparedness for FY1 training. In the near future a nationally cohesive programme allowing students to undertake a prolonged assistantship in their prospective job should be implemented.

7J/2
Orientation course for MBBS students at entry level: Our Experience

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Background: Students in India enter medical college soon after passing high school exams. There is a world of difference between school and a medical college, in terms of environment, curriculum, methods of teaching, learning and assessment. It would be beneficial to the students if they had adequate orientation towards the same.
Summary of work: With this in mind, the Medical Education Unit conducted a 8 day orientation course for 250 MBBS students at entry level in July 2012. The morning sessions comprised of large group discussions on medical ethics and professionalism, national health priorities and policies, etc. The afternoon was devoted to group activities like basic life support, communication skills, stress and time management, language training etc. Written feedback was obtained.
Summary of results: This 8 day course was well appreciated by the students. 196 students completed the feedback forms. They felt that the orientation program was very effective in giving them a clear idea of the course, and the skills and efforts needed for it, through various activities. 98% felt they were better equipped to face the challenges of becoming a medical professional.
Conclusions: We are one of the very few colleges in India who have conducted such a course and the only college to have conducted it for 250 students. Based on our success, we plan to make this an annual feature. A well designed orientation course helps the students to understand and realize the various facets of the medical profession.
Take-home messages: A well structured orientation course for MBBS students at entry level should be conducted in every medical college as it would help students coming from different learning environments to cope with the vast body of knowledge and skills required in the rapidly changing health care system.

7J/3

Identifying issues relating to the performance of newly qualified doctors during the early transition from medical student to F1

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Background: There is evidence to show that new medical graduates feel unprepared for the roles and responsibilities they face as junior doctors, which may have implications for patient safety.
Summary of work: This research investigated areas which junior doctors find difficult during the early weeks of practising as a doctor from the perspective of the doctors themselves and senior doctors who supervise them. The evidence was gathered through interviews with 22 supervisors and interviews and focus groups with 53 junior doctors (across multiple hospitals in the region).
Summary of results: Specific areas where junior doctors felt and were reported to be unprepared included: prescribing and knowledge of pharmacology, administrative tasks such as writing discharge summaries, developing differential diagnoses, challenging communications, responsibility, decision-making, hand-over, task prioritisation and time management. Junior doctors also felt the need for more in-depth departmental inductions.
Conclusions: The findings support existing research evidence that junior doctors are unprepared for work in some, but not all areas. There was consistency between the views of junior doctors and supervisors. This study confirms earlier findings that there is a need for better management of the transition from student to junior doctor. The findings have informed recommendations made to medical schools and employing hospitals in order to improve the transition between medical school and work as a newly qualified doctor and thus to enhance patient safety.
Take-home messages: The transition from medical student to F1 doctor needs to be handled more effectively.

7J/4

The Apprentice: shadowing experiences of newly qualified doctors using qualitative research

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Helen Goodyear (NHS West Midlands Workforce Deanery, Postgraduate School of Paediatrics, Birmingham, United Kingdom)

Background: The first few weeks of being a doctor are often stressful with a potential increased risk to patients. Job shadowing and taking part in day-to-day activities by final year students and medical graduates varies by medical school and deanery. In July 2012, a UK National Mandatory Paid Shadowing Week (NMPSW) was introduced for graduates beginning posts in August. This study looks at whether the NMPSW improved the transition from student to newly qualified doctor.
Summary of work: 6 Focus groups, using semi-structured interviews looked at Foundation year one doctors' (FY1Ds) shadowing experiences both pre and post NMPSW at one large Hospital Trust.
Summary of results: 46 participants took part. Thematic data analysis showed 4 themes: what makes the experience worthwhile, patient safety issues, the impact of shadowing on medical teams and suggested improvements. Overall, the NMPSW was considered beneficial. Ward based work, working out of hours and FY1Ds' job survival tips were more useful then senior staff lectures. Issues included lack of engagement by some consultants, organization, no guidelines on what to include in shadowing and the outgoing FY1D having increased responsibility.
Conclusions: The NMPSW was valued by FY1Ds and its timing enabled formal patient handover thereby improving patient safety. Shadowing guidelines are needed and the outgoing FY1D needs training for their teaching role. The optimal duration of student shadowing and the NMPSW needs evaluation.
Take-home messages: A formal shadowing week, immediately prior to starting work is valued by newly qualified doctors and aids provision of safe, high-quality patient care.

7J/5

Mentoring for junior doctors. A success for both mentor and mentee

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Bo Rahbek (Junior doctors in Denmark, Education & Career, Copenhagen, Denmark)

Background: In Denmark there is a significant difference between the life as a student and the life as a working doctor. Among newly educated doctors, this results in an expressed concern over the culture prevailing in the working life as a doctor. Therefore, in 2008 Junior Doctors decided to start a mentoring program for newly educated doctors. The mentors are recruited among more experienced doctors and specialists.
Summary of work: From the beginning, the primary focus has been the mentees´ work related to challenges and career coaching concerning their future specialisation. Mentees have been paired up with mentors from another hospital so that the mentee may

feel comfortable with their mentor without worrying about breach of confidentiality.

Summary of results: It is clear that mentees have the prior expectation that they will benefit the most from career coaching. Nevertheless, our experience shows that sparring about daily challenges is the main contributor to the further education of the mentees. Futhermore, a clear pattern shows that mentors benefit from mentoring as much as the mentees, partly because they become better sparring partners, and partly because they become aware of their own choices in their career. Every year approximately 210 mentors and mentees are paired up.

Conclusions: Based on the results, we know that a mentoring program eases the transition to a working life as a doctor and helps improve doctors´ future career choices.

Take-home messages: Matching should be done based on geography to ensure that mentor and mentee may meet relatively easily.

7J/6

Gaps and Traps - Attuning Procedural Skills for Internship

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Annette Burgess (The University of Sydney, Clinical School, RPAH, Sydney, Australia)
Craig Mellis (The University of Sydney, Clinical School, RPAH, Sydney, Australia)

Background: The literature shows the rate of adverse events increases when interns commence employment. In Australia most interns commence employment in January.

Summary of work: In October/November 2012 at Sydney Medical School, Royal Prince Alfred Hospital, we ran a troubleshooting procedural skills course to prepare pre interns (PRINTS) for safe practice in a hospital environment as interns. During this time PRINTS were presented with advanced procedural skills scenarios and encountered common problems that occur on the wards. This is a cohort study N=60. This study will use qualitative and quantitative data to evaluate PRINTS perceived and practical effectiveness of this course. PRINTS commence work as interns in January 2013 and will be followed up by survey and focus groups 2 months into their internship to gauge the impact that the course has had on their transition into internship.

Summary of results: Students were surveyed following the course. The outcomes were positive with some students remarking that they could have and more time or that they would have benefited if this to be done earlier in their course. Data results are pending in April 2013.

Conclusions: We hypothesise that this course will enhance the existing knowledge that our PRINT students had through simulated models to pure trouble shooting real life problems on the wards. This will enhance their awareness of safety issues in hospitals, and help to prevent adverse events from occurring in our hospitals.

Take-home messages: The benefits of a troubleshooting procedural skills course can help with enhancing safety awareness issues for interns.

7K Short Communications: International Medical Education 2

Location: Club B, PCC

7K/1

Creating a sustainable training of trainers approach in developing countries

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Josep Subirana (The Brooke, Veterinary Team, London, United Kingdom)
Tamsin Fussey (The Brooke, Veterinary Team, London, United Kingdom)
Klara Saville (The Brooke, Veterinary Team, London, United Kingdom)
Kate Exley (Higher Education Assessment and Development Ltd, Wakefield, United Kingdom)

Background: Much Brooke work centres around improving equine healthcare by training local veterinary professionals, many of whom speak little English, making it impossible for the UK veterinary team to deliver training. A programme to train others to train (training and facilitating adult learners – TFAL) was established to develop an international senior training team (STT) who deliver training in their own countries. The aim of this approach is to blend international expertise with local 'know-how' to enhance animal welfare.
Summary of work: A course was developed for the STT, enabling them to deliver TFAL in their local language; thus enlarging the group of people able to train others effectively. The course included one week of training by the UK team, followed by a week in which the initial participants delivered TFAL training to a new group of international participants. The UK team provided support, assessed the new trainers and evaluated the training. An external evaluator advised on programme design, attended and evaluated the course during week one.
Summary of results: Interviews prior to week two indicated all participants felt well-prepared to deliver TFAL and that the training had exceeded their expectations. Those trained in week two gave 100% positive feedback on their experience. The evaluator provided excellent evidence on the success of the training from observations and interviews.
Conclusions: Take-home messages: Interviews, questionnaires and consultant evaluation indicate this method of training is effective and appreciated. Evaluation is needed as the STT deliver this training in country to ensure training quality remains consistently high.

7K/2

Middle East Experience of North-American Medicine clerkship

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Dora Stadler (Weill Cornell Medical College in Qatar, Medical Education, Doha, Qatar)

Background: Weill Cornell Medical College in Qatar (WCMC-Q), is a direct branch of Weill Cornell Medical College in New York City (WCMC-NY) and is the first medical school in Qatar. The sixth class will graduate this year, with all of them having completed their medicine clerkships at a government affiliated hospital. The medicine clerkship is a 12-week rotation in the third year. The curriculum was adopted from WCMC-NY and consists of 3 blocks, two in General Medicine (GM) and one block Critical Care. During these blocks students also participate in case-based tutorials, write a reflective ethics narrative and several traditional write-ups.
Summary of work: We will describe challenges and successes for implementing the curriculum of a North American Medicine Clerkship in an educational culture not totally familiar with the system. We will discuss the improved integration of medical students into the medical teams. We will highlight innovations used to broaden the students' exposure in addition to address specific cultural and ethical issues in our unique setting. Differences in pathology, hospital experiences, clinical teaching and clinical assessment will be addressed.
Summary of results: Our successes to overcome boundaries and maintain the similarities between the two campuses include the shared seminars and use of SIMPLE cases to supplement the ambulatory component. Remaining challenges include enhancing our students' exposure to outpatient medicine and continued improvement of meaningful clinical assessment of our students.
Conclusions: This innovation to curricular adaptation is the first in the region and can benefit the growing number of U.S Medical schools establishing branches/affiliations worldwide.

7K/3

Emotional intelligence development in allied health professional students: An international perspective

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Background: Emotional intelligence (EI) is an important and valuable trait for healthcare practitioners. Few studies analyse the development of EI from student to qualified practitioner. This abstract presents results from the first stage of a five year longitudinal international study investigating the development of EI in BSc degree programmes for allied health professional students.

Summary of work: 319 1st year radiography and radiotherapy students from BSc (Hons) degree programmes at three universities (Ireland, UK and Hong Kong) were invited to complete an online EI questionnaire and their scores compared to published norms for qualified radiographers using independent sample t-tests with Bonferoni correction for multiple testing and analysis of covariance to correct for the effects of age and gender.

Summary of results: There were 230 (72% response rate) participants comprising 118 (51.3%) females, 112 (48.7%) males, mean age 19.40yrs. Statistically significant differences were found between the UK/Ireland student group and the norm data for qualified UK radiographers on Global EI (p≤0.01) and factors of Well Being and Self-control, both p≤0.01. In all cases the mean score for qualified staff was higher than the students [Global EI score (Student = 5.04, Qualified = 5.28); Well Being, (S=5.41, Q=5.75); Self-control, (S=4.51, Q=4.89)].

Conclusions: There are differences between the EI profiles of new students and qualified radiographers and radiotherapists. Qualified staff scored higher on Global EI and two of the four factors which comprise the EI measure.

Take-home messages: Emotional Intelligence of new students in radiography and radiotherapy is less well developed than that of their qualified colleagues.

7K/4
ASEAN Economic Community (AEC) and Medical Qualification

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Background: In the regional movement toward ASEAN Economic Community (AEC), medical professions including physician will be free to work across member countries. Ensuring comparable medical qualification systems is therefore crucial but good synthesis of relevant information has been lacking. This study was aimed (1) to comparatively analyze information on Medical Licensing Examination (MLE) across ASEAN countries and (2) to assess stakeholders' view on potential consequences of AEC on medical profession.

Summary of work: To search for relevant information on MLE, we started with country's national body (primary data source). In case of data unavailability, secondary data sources such as official websites of medical universities, colleagues in international and national medical student organizations, as well as some other internet sources were approached as appropriate. Feasibility and psychometric properties of these sources were assessed using focus group discussion. For the second objective, in-depth interviews were conducted with stakeholders, purposively selected based on maximum variation sampling technique to represent medical licensing authority, medical profession, as well as economic viewpoints.

Summary of results: MLE systems vary across ASEAN countries. All countries but Brunei offered MLE. While majority use central MLE system, Singapore, Indonesia, and Vietnam decentralized their MLE system. Stakeholders reflected that, for example, common license is unlikely whereas using native language in the examination is fair.

Conclusions: MLE systems differ across ASEAN countries in some important aspects, that should be addressed in the movement toward AEC.

Take-home messages: MLE systems differs across ASEAN countries in some important aspects, that should be addressed in the movement toward AEC.

7K/5
The Health Care Team Challenge: An Innovative International Interprofessional Education Model

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Valerie Ball (University of British Columbia, College of Health Disciplines, Vancouver, Canada)

Background: Academic institutions worldwide have been tasked with embedding interprofessional education (IPE) into the curricula of the health professions, yet few descriptions of interprofessional learning activities that have been successfully implemented internationally are reported in the literature. This paper describes one such IPE model, the Health Care Team Challenge (HCTC), its key and unique features, international variations, implementation and evaluation strategies.

Summary of work: In 2011, the Canadian Institute of Health Research (CIHR) provided the University of British Columbia College of health Disciplines with a Meetings, Planning and Dissemination Grant to bring together a group of Faculty who had experience with the HCTC IPE model from universities in Canada, the United States, Australia, and Japan. Participants formed an International Network of Health Care Team Challenges (INHCTC) with the aim of advancing this IPE model.

Summary of results: This presentation will share the workshop findings of the INHCTC including: an overview of the key features of the educational model, unique aspects of the model as compared to other IPE opportunities, the international variations of the model, implementation and evaluation strategies, and a proposed research agenda for the INHCTC.
Conclusions: The HCTC is an innovative IPE model that can be integrated with ease into health profession curricula internationally. Continued research is underway to demonstrate its impact on interprofessional learning and collaborative practice.
Take-home messages: Curricular change within the health professions towards IPE is occurring at both the pre and post-licensure levels internationally. IPE models like the Health Care Team Challenge can assist academic institutions in meeting these new curricular demands.

7K/6

Exploration of PGME curricula on an EU level: Do residents attain an equivalent postgraduate medical education within the EU?

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Background: Postgraduate medical education (PGME) is currently the independent responsibility of each European Union member state. The European Union of medical specialties (UEMS) has a longstanding history of attempting to pursue EU standards for PGME in order to ensure quality of care throughout Europe. PGME policies within the EU were compared to uncover variances in curricula, in order to see how far the EU currently is from a shared PGME policy vision.
Summary of work: The so-called "CIA-project", was conducted with the use of a semi-structured questionnaire and stakeholder interviews in order to analyze three main aspects at the macro-system level: 1. Current situation and trends; 2. Importance of developments and desired innovations; 3. Attainability of desired innovations. The interviews were held among policymakers in eight selected EU-countries. Selected indicators essential to PGME structure and duration were contrasted.
Summary of results: Consistencies amongst the selected countries included the use of competency-based medical education in six out of the eight selected countries and mandatory Continuing Professional Development in five out of the eight selected countries. The indicator "PGME duration" displayed the most

inconsistencies, mainly relating to diverse transition structures from basic medical education to PGME.
Conclusions: Although shared policies appear to be absent at the present time, our overview displayed significant consistencies. This indicates that unified standards may be attainable in the EU through cooperation between policy makers and the continued support from European medical organizations.
Take-home messages: Current trends in policy seem to indicate that a shared vision concerning some aspects of PGME may be possible in the future and could assist in making the EU one of the leading PGME experts in the world.

7L Short Communications: Approaches to Selection

Location: Club C, PCC

7L/1
How consistent are results of admission tests?

Hans Georg Kraft (Medical University of Innsbruck, Medical Genetics and Molecular and Clinical Pharmacology, Peter Mayr Str. 1, Innsbruck 6020, Austria)

Background: In 2006 a cognitive aptitude test (EMS - Eignungstest Medizin Schweiz) was introduced as the exclusive criterion for admission of medical students at the Medical University of Innsbruck. In addition a quota system was established which guaranteed 75 % of the vacant places for Austrian applicants. 20 % of the places were reserved for candidates from other EU countries and 5 % for students from non-EU countries. This system was considered necessary to provide sufficient physicians for the Austrian health care system. Candidates who did not reach the necessary limit in the EMS were given the opportunity to repeat the test in another year.
Summary of work: Here we show and analyze the test results of candidates who repeatedly participated in the EMS test in Innsbruck, Austria from 2006 until 2009. It is analyzed whether the retake leads to changes in the test result, whether it leads to an admission to study as a function of gender and quota.
Summary of results: 6478 candidates took part in the EMS in Innsbruck. 516 applicants tried twice, 42 applicants participated three times and 5 took part in all 4 tests. Male applicants were found with higher frequency within the repeaters than females. Two thirds of the candidates reached a higher test result upon repetition, 21 % the same result and 13 % had less points after 1, 2 or 3 years hence the chance to be admitted increased with the number of repeats.
Conclusions: The result in the EMS aptitude test is not consistent but can be improved upon repetition.

7L/2
The Biomedical Admissions Test (BMAT) for medical student selection: overview of research evidence

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Sarah McElwee (Cambridge Assessment, Research and Validation, Cambridge, United Kingdom)

Background: The BMAT has been in use since 2003 and forms a part of the selection processes of a number of UK institutions. The test consists of three sections measuring scientific aptitude, scientific understanding and written communication. It is designed to assess readiness for demanding, science-based study and not fitness to practice. Institutions use BMAT scores in conjunction with other selection criteria such as national examination results and interview performance, although some institutions use the test as a hurdle to the interview stage. This presentation gives a brief overview of the validation work carried out for the BMAT.
Summary of work: Early validation work focussed mainly on the predictive validity of the test. The relationship between BMAT scores and test preparation has also been investigated. Group differences in BMAT scores continue to be an important research focus.
Summary of results: The BMAT predicts early medicine course performance, with the scientific understanding section generally showing the strongest relationship with both examination success and examination failure. The effect of candidate preparation on test scores is difficult to establish with correlational designs but no relationship has been found between BMAT scores and the preparation help that candidates receive from their schools. Small gender differences in BMAT performance are evident but these do not appear to be a result of test bias.
Conclusions: Research evidence supports the predictive validity and fairness of the test for student selection.
Take-home messages: The BMAT appears to be a useful and valid addition to the medical student selection process.

7L/3
Social networks, identity, and widening access to medicine

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Suzanne Vaughan (University of Manchester, School of Medicine, Atr4 ERC, University South Hospital Manchester, Manchester M23 9LT, United Kingdom)

Background: Widening participation to recruit students to represent our diverse population is a key policy initiative in the UK. Medical schools have failed to engage students from lower socioeconomic status (SES) backgrounds. Young people from these backgrounds lack many educational and cultural resources, may hold negative perceptions of the medical profession and can struggle to imagine themselves as successful medical students.
Summary of work: We investigated the interaction of social networks, experience and achievement on young people's career decisions with regard to medicine. We collected data from students aged 11-17 (n=107) across ten state schools in Greater Manchester during widening participation sessions facilitated by medical students. The questionnaires were analysed quantitatively and qualitatively.
Summary of results: The attributes students perceived a "good doctor" to have varied according to their SES, gender and ethnicity. The majority of participants could imagine a future as a doctor. Early identifiers (participants deciding to study medicine aged 12 or below), those with professional parents and those with

doctors in their social network were more likely to have work experience and required predicted grades for application to medicine.

Conclusions: There are significant relationships between pupil's social status, social networks, identification and achievement. We consider these in relation to theories of learning and identity. A lack of social and cultural resources prevents many lower SES young people from gaining the experiences and achievement recognised by medical school admissions panels.

Take-home messages: With rising tuition fees and falling social mobility it may become harder to recognise individuals with potential who may be disadvantaged by educational or social resources.

7L/4
Student Admission Quo Vadis?

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Martina Kadmon (Heidelberg University, Klinik for General, Visceral and Trasplantation Surgery, Heidelberg, Germany)

Background: Admission of medical students is often based on instruments, which are disadvantageous if the aim is to increase student diversity without compromising high academic standards. These include admission instruments that strongly correlate with academic performance, admission procedures of insecure validity, and the misleading assumption that we know what me measure by the instruments we use.

Summary of work: Our compensatory admission procedure is primarily based on two independent cognitive instruments, baccalaureate GPA and the German Test for Medical Studies. It is monitored by longitudinal quality management.

Summary of results: Since its implementation, the students have reached homogeneously high academic grades regardless of their baccalaureate GPAs and diversity. Attrition has been reduced by 60-85%. MMI simulation using categorised OSCEs has shown that the competencies needed for success in the course are different than expected and change in time.

Conclusions: (1) The compensatory admission procedure ensures both high diversity and homogeneously high performance. For this, all admission instruments must be offered to ALL applicants. (2) "Cognitive" instruments also reflect non-cognitive traits. (3) The traits that are reflected by admission instruments and those that are needed for success are often obscure. (4) In designing future admission procedures these limitations must be considered. (5) Designing admission instruments that predict both success in the pre-clinical part of the course and future professional success such as EPA competence is an important task for future research.

Take-home messages: Admission instruments should be designed to predict high homogeneous performance in different parts of the medical course while accepting procedural limitations and insecurity concerning the relevance of the underlying hypotheses.

7L/5
Identifying attribute domains to blueprint medical student selection tools

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Tom Wilkinson (University of Otago, Medical School, Dunedin, New Zealand)

Background: Determining the ability of admission tools to predict later outcomes is an important component of validating admissions schemes. However, most research focuses on individual assessment tools in isolation, rather than the domains each should aim to measure and their relative importance.

Summary of work: We broke down all measures used for admissions at Otago Medical School into the smallest possible component scores and used linear regression to assess the validity of each score for predicting performance in fifth year examinations. Those found to be useful were re-grouped into domains on the basis of assessed attributes. Regression was repeated to determine the optimum weighting for each domain in an admissions model.

Summary of results: Three measures were found to have no independent predictive value (chemistry, physics, and UMAT section 3). We were able to group the remaining measures into discrete domains of "Biological Science", "Critical Reasoning", "Understanding People", and "Communication Skills", each of which was independently and significantly associated with later success.

Conclusions: Medical admissions schemes work best when blueprinted to a range of desirable attributes. However, including components without objectively evaluating their value risks undermining those elements known to be effective.

Take-home messages: These results suggest that the validity of an admissions scheme can be optimized by focusing on desirable domains to measure, rather than those tools that will measure them. This programmatic approach parallels recent advances in approaches to assessment.

7L/6
The interview - its place in the medical selection process: some initial explorations

Chris Skinner (University Notre Dame, Medicine, Henry St, Fremantle 6011, Australia)
Raoul Oehman (Notre Dame University, Medicine, Fremantle, Australia)

Background: Recent selection research has cast some doubt on the use of the interview and suggests additional methods that could replace or be used in conjunction with the interview. Currently there are four different indices upon which students are evaluated when seeking admission to UNDA School of medicine including their GPA (grade point average), their GAMSAT score, their score on an interview, and the medical

student selection form. The interview itself consists of five sections: motivation, interpersonal team, empathy, ethics and communication.

Summary of work: An analysis for 2011 and 2012 medical cohort selection scores was undertaken, to establish whether the interview process was providing useful different and additional information to that provided through the GPA, GAMSAT and medical student selection form scores. Secondly, the interview was examined to establish whether separate interview sections contributed to a valid interview score.

Summary of results: A. Examination of the four selection measures suggested that they measured different aspects of the students' abilities. Significant associations included: As GAMSAT scores go up, Interview scores tend to become lower. As GPA scores go up, scores on the UNDA Selection Form tend to become lower. B. Results suggest that despite having 5 Interview segments, we are only measuring one major underlying factor.

Conclusions: A. Academic performance (GPA and GAMSAT) measures, compared to Selection form and Interview measures were considered measuring significantly different aspects. B. Factor analysis suggested that the interview process is assessing one major factor, which appears to be a 'global interview' or 'interview impression' factor.

Take-home messages: Review and design specific new interview segments, based on required competencies or abilities. The interview measures different aspects than academic performance.

7L/7
Modified Personal Interviews for the Selection of MD/PhD Candidates

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Lindsey Fechtig (University of Toronto, Canada)
Nicole Woods (University of Toronto, Surgery, Toronto, Canada)
Norman Rosenblum (University of Toronto, Canada)
Mark Hanson (University of Toronto, Canada)

Background: MD/PhD student selection requires assessment of characteristics related to research and the physician scientist career. While personal interviews are used to select MD/PhD students, a single personal interview is limited by low reliability. Hanson et al. (2012) showed that a modified personal interview (MPI) can be used for focused selection tasks; increasing reliability by using 4 brief, semi-structured interviews. We implemented the MPI in the context of MD/PhD selection.

Summary of work: Applicants to the University of Toronto MD/PhD program were evaluated via the MPI with 4 brief semi-structured personal interviews each with a single rater. Interviewers were given pre-selected questions but encouraged to be flexible in interviewing. Each interview was mapped to a single attribute valued for MD/PhD training: research experience, self-reflection, motivation, and the physician scientist

perspective. Three attributes (maturity, curiosity, critical analysis of psc) were mapped across all interviews. All attributes were evaluated via 7-point Likert scales. Results were analyzed for reliability using generalizability studies.

Summary of results: Forty-two applicants completed the MPI. Inter-interview reliability averaged across 4 interviews was 0.76. Inter-item reliability within a single interview was 0.94. Factor analysis showed all items loaded on a single factor with maturity items having highest loadings. A majority of applicants and interviewers found the MPI to be acceptable.

Conclusions: The MPI has utility for selection of MD/PhD students. Future research will determine the validity of the selection process.

Take-home messages: MD/PhD student selection can be improved adopting the MPI format with high reliability and acceptability.

7M Short Communications: Student Wellbeing and Support
Location: Club D, PCC

7M/1
How an increase in personal resources initiates an upward spiral of resources and engagement in young veterinary professionals

Nicole JJM Mastenbroek (Faculty of Veterinary Medicine, Utrecht University, Chair Quality Improvement in Veterinary Education, Netherlands)
Harold GJ Bok (Utrecht University, Faculty of Veterinary Medicine, Netherlands)
Debbie ADC Jaarsma (University of Amsterdam, Academic Medical Centre, Netherlands)
Albert JJA Scherpbier (Maastricht University, Faculty of Health, Medicine and Life Sciences, Netherlands)
Peter van Beukelen (Utrecht University, Faculty of Veterinary Medicine, Netherlands)

Background: The transition from student to professional is a psychological developmental process and can be seen as a learning opportunity. Often it is accompanied by elevated levels of stress, however when transition is successful it can be highly engaging. According to the JD-R model, personal and job resources influence this process. Personal and job resources and work engagement are reciprocally related. In order to gain insight in how an intervention, focused on the increase of personal resources, influences job resources and work engagement, we conducted an explorative qualitative study.
Summary of work: We performed semi-structured interviews among 15 recently-graduated veterinary professionals who voluntarily participated in a 1-year coaching program on personal effectiveness. The interviews covered perceived growth of personal resources and perceived changes in job resources and work engagement.
Summary of results: Increased self-awareness, self-confidence, self-efficacy and perceived control were the most important results of the coaching program. The increase of personal resources lead to a more proactive attitude concerning the generation of job resources, which often resulted in an increase of perceived work engagement and reduction of stress.
Conclusions: This study has created a better understanding of how increased efficacy beliefs can onset upward spirals of resources which subsequently can help young professionals to break out of the loss circle which leads to loss of engagement.
Take-home messages: Efficacy beliefs are an important factor in the course of the transition and a target for interventions.

7M/2
Doctor overnight, the never-ending student and the true self – Identity ambivalence in medical students

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Lindström Ulf (Medical School, Professional Development, Public Health and Clinical Medicine, Umeå University, Umeå, Sweden)
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Background: Psychological distress such as depression, stress and burnout is common among medical students. Little is known about medical students' identity formation and its impact on wellbeing. This study aims to explore what it means to be a medical student in clinic and other social interactions.
Summary of work: In this qualitative study we have analyzed 38 free-text essays about being a medical student, written by medical students at the course "Professional Development" at term seven in Medical school, Umeå University, Sweden.
Summary of results: Medical students' experienced that expectations on them differed depending on context. We found three different categories leading to identity ambivalence. In social situations, the informants were treated as 1) Doctor Over Night, being regarded as super-beings worthy respect and expected to have vast and all-embracing knowledge. But, they also felt considered as cocky and as if believing they were better than others. In the clinic, the informants were treated as 2) Never Ending Students expected to take part and learn but were treated as air and obstacles. These diametric expectations were in contrast with the students own view of their 3) True Self, which to some extent differed depending on gender.
Conclusions: Being a medical student includes hard work in forging diametric expectations together and forming a congruent and solid professional identity.
Take-home messages: To help medical students develop professional identity, medical educators should provide opportunities to discuss, and tools to understand, the social mechanisms in the clinic as well as in other social situations.

7M/3
The lived experience of medical students with mental illness: a narrative study

Andrew Grant (Cardiff University, Institute of Medical Education, UGT 162A, UHW, Heath Park, Cardiff CF14 4XN, United Kingdom)

Background: Medical students experience more mental ill health than age-matched controls but are reluctant to access help. To date no study has explored the lived experience of medical students who have suffered mental illness.

Summary of work: Eleven subjects, ten medical students and one junior doctor all of whom had experienced mental illness as students. Biographical narrative interviewing is carried out in stages. Firstly the interviewer asks a single question and takes structured notes from which they can ask questions aimed at hearing the narrative of particular episodes. Narrative offers the researcher a way of studying the content and the respondents' chosen way of expressing it.

Summary of results: The following themes emerged: Students experienced serious mental illness involving suicide attempts, hospital admissions and self-harm. 6 students had a history of mental illness before medical school but only one declared it. Students were isolated by mental illness. Having to take a year's leave of absence was devastating for some students. Students concealed their illness from the school and their peers. Some performed well academically.

Conclusions: By exploring narratives we were able to access episodes relevant to the students and to concentrate on aspects of importance to them. Medical students with mental illness may perform well academically but are isolated. Fears about revealing a mental illness act as a barrier to students accessing necessary support.

Take-home messages: When planning support services for medical students with mental illness students' views should be sought and students' fears for their career considered.

7M/4

Assessing the Current Learning Environment and Making Suggestions for Improvement to Assist the Identified At-Risk Students – a Mixed Method

Amina Sadik (Touro University Nevada, College of Osteopathic Medicine, Basic Sciences, 874 American Pacific Drive, Henderson 89014, United States)
Leticia Rojas (Touro University Nevada, College of Osteopathic Medicine, Basic Sciences, Henderson, United States)

Background: The number of students experiencing academic difficulty continues to plague medical schools worldwide. While studies have investigated the causes of underperformance by these medical students, none has listed academic markers of "at risk" students.

Summary of work: This study aimed to find identifiers of these students based on the differences in learning practices between students with low, medium, and high performance. To this end, three cognitive tests were administered and a questionnaire was prepared.

Summary of results: The data indicated that high performing students utilized more techniques to learn and sought additional resources when the teaching methods were not congruent with their way of learning. Medium performing students learned best when given practical applications of the material. The majority of low performing students found the volume of material to be overwhelming and needed improvement in study skills, suggesting that the lack of preparedness for the rigors of medical school played a major role in their

underperformance. Using Kolb Learning Style Inventory, the majority of low performing students have a diverging learning style; the medium performing students were predominately of accommodating learning style, whereas the greater part of high performing students had an assimilating learning style.

Conclusions: The data suggest that in order to promote academic success for the majority of medical students, they should be assisted in finding the best learning style via diagnostic testing.

Take-home messages: After identification of at "risk students", a combination of study skills and time management learning tools should be provided.

7M/5

Building resilience among medical students

Karen Trollope-Kumar (McMaster University, Family Medicine, 45 Marion Ave North, Hamilton L8S 4G2, Canada)

Background: Our prior study on Building Physician Resilience in Hamilton, Ontario, laid a foundation for a program to promote resilience among medical students. Our longitudinal curriculum on self-care and self-awareness in the undergraduate medical program at McMaster University is now in its sixth year.

Summary of work: The self-care curriculum in the Professional Competencies program comprises five sessions in pre-clerkship and one follow-up session during clerkship. Students' reflective portfolios give them an additional opportunity to explore ways to build resilience.

Summary of results: Evaluation of the program each year by faculty and students has led to an increasing emphasis on a dynamic, experiential approach, using tools such as mindfulness, interactive web-based programs, a reflective portfolio, and student-planned field trips. This year, we extended the program into clerkship. Meeting in small groups with trained facilitators, students discuss clinical challenges and work on building personal resilience.

Conclusions: The Self-care and Self-Awareness program of the Professional Competencies curriculum, founded on prior research work on building resilience, focuses on the needs of undergraduate medical students. In small groups, students share the strategies for building resilience, using a dynamic, experiential approach. Positive evaluations of this program have led to an extension of the curriculum into clerkship.

Take-home messages: Undergraduate medical students face a range of stressors, from academic pressures to the emotional demands of clinical environments. Our program provides a structured yet flexible way for medical educators to assist students in building resilience to stress.

7M/6
Orientation program for fresh medical undergraduates: Experience from All India Institute of Medical Sciences, New Delhi

Kishore Kumar Deepak (All India Institute of Medical Sciences, Centre for Medical Education & Technology, Department of Physiology, New Delhi 110029, India)
Balachandra Adkoli (All India Institute of Medical Sciences, Centre for Medical Education & Technology, New Delhi, India)

Background: Medical students in India are generally poorly equipped in communication skills and stress coping when they enter the course. The problem is acute in our school which admits students coming from diverse geographical, linguistic and socio-economic backgrounds.
Summary of work: The school engaged a Management Institute for running a ten days orientation program. The program covered three components - viz. behavior, communication and theatrics, with a highly interactive process comprising group exercises, role plays and skits. Besides feedback from students, observations were made by the faculty to identify students who needed further support and counseling. The program was followed by two specific interventions – mentoring by the basic sciences faculty for all students and arranging regular classes of communication skills to address language deficiency for identified students.
Summary of results: Student feedback was extremely positive. They were highly motivated. Their level of confidence and preparedness, as reported by the concerned teaching faculty was remarkably higher compared with previous batches. The batch developed teamwork skill in a healthy academic environment. Informal interactions with faculty revealed time constraint for mentoring. While regular communication classes appear to be useful, their long term impact needs to be studied.
Conclusions: Our experience was largely successful, mainly due to the committed administrative leadership that engaged a specialized agency. The quality and timing of the program besides follow up also contributed to the success.
Take-home messages: Early encapsulated intervention to orient the undergraduates followed by specific interventions can play a significant role to alleviate the adjustment problems and promote teamwork.

7M/7
Medical students in difficulty: what screening? What actions for support?

Joel Ladner (Rouen School of Medicine, Public Health Department, Rouen, France)
Olivier Mouterde (Rouen School of Medicine, Public Health Department, Rouen, France)
Francis Roussel (Rouen School of Medicine, Public Health Department, Rouen, France)
Christophe Girault (Rouen School of Medicine, Public Health Department, Rouen, France)
Jean Francois Gehanno (Rouen School of Medicine, Public Health Department, Rouen, France)

Background: Some recent studies suggest that the frequency of medical students in difficulty is increasing. Objectives were to identify predictive factors of difficulties in medical students and to evaluate the outcomes after the onset of difficulty events.
Summary of work: A case-control study was conducted in Rouen Medicine School in 2012. Cases were defined as students who had a major event: the non-validation of a hospital stage (HS), controls as all students who have validated all their HS. For all the students, the test scores from the year (Y) 2 to T6 of HS as well as curriculum examination results were collected. Notes and qualitative assessments obtained during oral examinations communication (face-to-face interviews with three examiners) in Y2 and Y3.
Summary of results: A total of 104 students were included, 26 cases and 78 controls. The Y2 and Y3 examination scores (before the non-validation of a HS) were significantly lower among cases (53 points on a total of 800, p=0.001). These scores were lower communication among cases (1.03/20, p=0.02) related to failure of concentration and the poverty of language. The qualitative analysis identified more frequently if the behaviour such "anxious," "reluctant," "nervous". After the event, the continuation of curriculum was more difficult in cases, examination results were significantly lower
Conclusions: The non-validation of a HS seems to be a relevant criterion to identify students in difficulty. In a context of increasing numbers of promotion, a closed medical culture emotions, pressure related to more frequent examinations and the preparation of entrance exams in the 3rd cycle, new approaches for tracking, propose access to support services specifically dedicated to students in difficulty are needed
Take-home message: New approaches are needed to provide a better support to students in difficulty

7N Meet the Expert: Victoria Brazil
Location: Meeting Room 2.1, PCC

Victoria Brazil (Bond University, Gold Coast, Australia)

Victoria Brazil in her plenary will look at two critical roles for medical education in the 21st century: aiming for a different 'end point' in the 21st century doctor, and reforming processes to achieve that aim, including returning patients to the centre of the education process. Come to meet Victoria to discuss further the issues she has raised in her presentation.

7O Workshop: Using free open access medical education (#FOAMed) to develop and support communities of learners for lifelong learning
Location: Meeting Room 3.5, PCC

**Natalie Lafferty** (University of Dundee, TILT, Medical Education Institute, CAMS, Level 8, Ninewells Hospital & Medical School, Dundee DD1 9SY, United Kingdom)
**Annalisa Manca** (University of Dundee School of Medicine, Medical Education Institute, Dundee, United Kingdom)
**Laura-Jane Smith** (University College London Medical School, Academic Centre for Medical Education, London, United Kingdom)
**Ellie Hothersall** (University of Dundee School of Medicine, Medical Education Institute, Dundee, United Kingdom)

Background: This workshop will raise awareness and demonstrate how tools such as blogs and twitter can support free open access medical education (#FOAMed), an internationally emerging trend in medical education.
Intended outcomes: Understand how free social media tools such as blogs and twitter can be used to develop FOAMed resources to support learning, and how this can be blended with existing curricula.
Apply the use of social media to design learning content tailored to specific learning needs and contexts.
Highlight the versatility of the FOAMed approach across the continuum of medical education and in different learning contexts.
Understanding and evaluating the benefits of participating in FOAMed learning activities.
A handout will be produced for workshop participants including an overview of theoretical paradigms, and practical advice on engaging staff and students in #FOAMed resource creation and use. We propose to write up a blog post after the workshop to share the outcomes of the workshop, including sharing the framework for adopting FOAMed approaches that participants define in the group activity.
Structure of workshop: This interactive workshop will present an introductory overview of FOAMed approaches including:
relevant educational theory, examples outside academic institutions including #gasclass and #twitfrg and examples developed within academic institutions including #fluscenario and #quclms
Participants will then work in groups to identify a framework to support the implementation of FOAMed approaches and develop a FOAMed resource.
Who should attend: This workshop will be of interest to individuals keen to explore how open tools can support online learning in medical education.
Level: Intermediate

7P Workshop: Using iPads in Undergraduate Medical Education
Location: Meeting Room 4.1, PCC

**Colin J Lumsden** (University of Manchester, Medical School, Manchester, United Kingdom)
**Lucie Byrne-Davies** (University of Manchester, Medical School, Manchester, United Kingdom)
**Jo Hart** (University of Manchester, Medical School, Manchester, United Kingdom)
**Ian Sampson** (University of Manchester, Medical School, Manchester, United Kingdom)

Background: Students are increasingly using mobile devices to learn in sessions such as PBL, clinical placements, lectures, seminars etc. Medical schools are increasingly providing their students with mobile devices and in Manchester Medical School, UK, we give all of our clinical medical students iPads (since Jan 2011). We have a programme of research and evaluation about the use of mobile technologies in medical education.
Intended outcomes:
An understanding of the challenges and benefits of iPads in medical education
Experience of using a mobile technology app
Knowledge of medical student use of iPads
Experience of developing research questions in mobile technology in medical education
Structure of workshop: The workshop will be led by the implementation, evaluation and student teams from Manchester Medical School. We will use an iPad / ipod / iphone app (nearpod) to illustrate how mobile technologies can be used in a session. We will show examples of how our students use their iPads and we will discuss our experiences of implementing the iPad project. Participants will generate research and evaluation questions arising from the use of mobile technologies in medical education
Who should attend: Educators who are interested to know more about what mobile learning can do for their students, staff and trainees and researchers and educators interested in researching mobile technologies.
Level: Introductory

7Q Workshop: Ethics teaching: Smooth and practical
Location: Meeting Room 4.2, PCC

Menno de Bree (UMCG, Institute for Medical Education, FC 40, A.Deusinglaan 1, Groningen 9713 AV, Netherlands)
Eite Veening (UMCG, Institute for Medical Education, Groningen, Netherlands)

Background: Helping doctors improving their ethical competencies is pretty difficult. Traditionally, ethicists basically tried to transfer specialized theory to the heads of the physicians, assuming that this would help them to address ethical issues more adequately. However, these kinds of educational interventions are often judged to be too abstract and impractical, leaving doctors behind with the idea that ethics is too difficult or not their cup of tea. Skipping teaching ethical theory is, however, not a good idea. While facilitating ethics discussions, we noticed that 'infusing' just the right amount of theory on the right time, greatly improved the performance of our discussion groups: discussions became richer, deeper, and more focused, while the reflection process itself speeded up. We realized that we should 'repack' ethical knowledge, and offer it to doctors in a way that they are familiar with, suits their needs, and supports their reflection processes in practice. We thus developed a set of 'educational tools' that should be introduced in small, modular packages (thematic minicourses of 5 minutes max). This helps participants to: (a) smoothly integrate ethical theory with their existing knowledge (and skills), (b) apply this knowledge directly in their own situation, and (c) see what the practical relevance of ethical theory is.
Structure of workshop: Short introduction of the educational background; Short introduction of at least two of our conceptual tools; Exercises; Discussion; Evaluation.
Who should attend: Ethics trainers, looking for new educational tools; Health care professionals, interested in doing ethics in a practical and down to earth way.
Level: Introductory

7R Workshop: Generalizability (G) theory in clinical skills assessments
Location: Meeting Room 2.2, PCC

Kimberly Swygert (National Board of Medical Examiners, Scoring Services, 3750 Market Street, Philadelphia 19104, United States)

Background: Assessment of clinical skills is a crucial part of undergraduate and graduate medical education, and the use of standardized clinical skills examinations for both formative and summative assessment is now widespread. An understanding of the basics of generalizability theory (G theory) concepts, applications, and software options is crucial for any clinical skills test developer or administrator who wishes to develop or improve assessments for communication skills, data gathering, written communications, and other skills.
Intended outcomes: This workshop will provide an overview of G theory, with a focus on (a) covering G theory concepts and formulas that are most useful in the clinical skills context, (b) introducing specialized G theory software, (c) using G theory to assess the impact of case/rater specificity and estimate the reliability of a clinical skills assessment, and (d) the role of G theory analyses in collecting validity evidence. Examples from the United States Medical Licensure (USMLE) Step 2 CS examination, as well as other datasets, will be used for demonstrations.
Structure of workshop: Interactive presentation via Powerpoint with accompanying handouts and extra material.
Who should attend: Medical school faculty and assessment administrators who would like to learn the basics of G theory in order to expand their knowledge base and understand how to assess and improve their clinical skills examinations.
Level: Introductory

7S Workshop: Teaching in the Clinical Setting: Strategies to Assist the Teacher in Difficulty
Location: Meeting Room 3.1, PCC

Leslie Flynn (Queen's University, Faculty of Health Sciences, Kingston K7L 3N6, Canada)
Denyse Richardson (Toronto Rehabilitation Institute, Toronto, Canada)
Linda Snell (McGill University, Centre for Medical Education, Montréal, Canada)
Lara Cooke (University of Calgary, Continuing Medical Education & Professional Development, Calgary, Canada)

Background: Front-line clinician-teachers are essential to medical education; yet most do not have formal training in teaching. Qualities of excellent clinical teachers are well described but a gap exists in the literature on how to address individuals at the opposite end of the spectrum – the ineffective teacher. The focus is on teacher performance in the clinical setting.
Intended outcomes: This interactive workshop will assist faculty developers and clinician educators to develop and implement a remediation program for the clinical teacher in difficulty. Remediation strategies can be tailored to meet the participants' own educational environment.
Structure of workshop: Use of archetypal cases and a systematic educational plan.
Who should attend: Clinical Teachers
Level: Intermediate

7T Workshop: You do it !!....No you do it !!...Whose role is It …? Using the objective structured clinical examination (OSCE) to assess interprofessional education competencies
Location: Meeting Room 3.2, PCC

Brian S Simmons (University of Toronto, Pediatrics, 88 College Street, Toronto M5G 1L4, Canada)
Susan J Wagner (University of Toronto, Speech-Language Pathology, Toronto, Canada)
Ann Jefferies (University of Toronto, Pediatrics, Toronto)
Diana Tabak (University of Toronto, Standardized Patient Program, Toronto, Canada)

Background: Interprofessional education (IPE) is the process through which different professions learn about, from and with each other to promote collaborative practices, facilitate teamwork and optimize patient/client care. IPE competency frameworks provide a description of the knowledge, skills, behaviours and attitudes necessary to achieve these learning goals. However, assessing learning outcomes for these IPE competencies remains a challenge. Competency frameworks emphasize the assessment of performance in each competency. The objective structured clinical examination (OSCE), a performance-based assessment methodology, is often used to assess performance of individual learners, but less frequently to assess IPE competencies. This workshop will focus on the role of the OSCE to assess a competency framework in IPE.
Intended outcomes: Participants in this workshop will be able to
Describe a competency framework for IPE
Identify challenges to assessing performance in IPE
Design an OSCE station that incorporates several IPE competencies
Plan an OSCE blueprint/map to assess the IPE competency framework relevant to different health professions.
Structure of workshop: Using brief didactic presentations and interactive group discussion, this workshop will provide participants with skills to develop OSCE stations/scenarios and blueprints/maps relevant to IPE. Participants will first explore how competency frameworks apply to IPE, how the OSCE can be used to assess these competencies and then observe, analyze and score simulated OSCE scenarios.   Working in small groups, participants will design and discuss OSCE stations that incorporate IPE competencies.
Who should attend: Health profession educators interested in assessment, evaluation, competencies and interprofessional education
Level: Introductory

7U Workshop: A Master Class in the Art and Science of Visual Presenting
Location: Meeting Room 3.3, PCC

Douglas Buller (University of Toronto, The Wilson Centre, 200 Elizabeth St ES1-565, Toronto M5G 2C4, Canada)

Background: Presenting research/scholarly findings in an interdisciplinary context is one of the hardest forms of dissemination. There is considerable instruction available on how to use slide-ware, but much less that focuses on practical approaches to visual and narrative design.
Intended outcomes: In this interactive workshop, we will focus on the application of visual design theory and techniques that make presentations more engaging, easier to understand and more memorable.
Structure of workshop: Participants will have the opportunity to work on creating presentations (individual or group based on attendance), receiving instruction and guidance on how to choose and incorporate images, how to distill textual slide content, and how to organize the flow of the presentation. The workshop will also focus on how to balance the presentation's aesthetic with rigorous academic expectations.
Who should attend: Participants should have a functional understanding of how to use PowerPoint or Keynote.
Level: Intermediate

7V Workshop: AMEE "Live" Teaching Challenge - a tool for learning and faculty development
Location: Room A, Holiday Inn

Paul de Roos (Uppsala University Hospital, Neurology Department, Ing 85, 2 tr, Uppsala 751 85, Sweden)
Alice Fornari (Hofstra North Shore-LIJ, School of Medicine, Hempstead, United States)
Patrick John Gannon (Hofstra North Shore-LIJ, School of Medicine, Hempstead, United States)
Suleyman Yildiz (Yeditepe University, Medical School, Istanbul, Turkey)
Jon Forssman (Uppsala University Hospital, Neurology Department, Uppsala, Sweden)
Pär J Höglund (Karolinska University Hospital, Pediatrics, Stockholm, Sweden)

Background: Teaching effectiveness can be evaluated by a number of potential sources of evidence, for instance student ratings, self-ratings and peer-observation. High quality feedback is essential to provide an innovative learner-centered faculty development approach. For this workshop we design an exploratory learning environment evaluates how a teacher can facilitate learning, be observed, get direct feedback and engage into discussion with a focus on further skills development. The workshop participants are students, peers and education experts who share their evaluations to help the teachers learn.
Intended outcomes: Explore and reflect on possible opportunities for "live" faculty development
Facilitate learning among colleagues by sharing multiple sources of feedback
Structure of workshop: The participants of the workshop will be distributed in three rooms. Three educators will have the opportunity to deliver three teaching sessions of 15 minutes each (one in each room). After the teaching sessions, feedback rounds will start (10 minutes each).
The three teachers are assigned to prepare a 15 minute educational intervention to a diverse group of session participants in different spatial settings and the challenge for the faculty is to adjust and use the best teaching pedagogy. The teachers will be provided with feedback from multiple sources: student ratings, self-ratings and peer-observation verbally and by a standardized evaluation instrument. The discussion will provide constructive and empowering feedback. The session facilitators have an opportunity to self-assess themselves using the same methodology. The session participants will observe and write down at least two concrete behaviors they observed, to help strengthen them in their own role as educators.
Who should attend: faculty, learners and those responsible for faculty development.
Level: Intermediate

7Z Posters: Student and Junior Doctor as Teacher

Location: South Hall, PCC

7Z/1
Giving medical students an introduction to teaching: a near-peer approach

Ayrton Goddard (South Devon Healthcare NHS Foundation Trust, Medicine, Torbay Hospital, Torquay TQ2 7AA, United Kingdom)
Jennifer Goddard (South Devon Healthcare NHS Foundation Trust, Medicine, Torquay, United Kingdom)

Background: Doctors in the UK are required by the General Medical Council (GMC) to participate in teaching and training. However it is not clear how trainees should develop the necessary skills. It has been suggested that medical students should receive formal teaching of educational principles to help meet these GMC requirements.
Summary of work: We designed and delivered a one hour 'Introduction to Teaching' session for a group of 70 undergraduate medical students. This covered core educational principles. Our aim was to assess how a one-off near-peer led teaching session influenced perceived student knowledge of educational principles, and confidence when delivering teaching sessions.
Summary of results: Comparison of pre-and post-session questionnaires indicated improved confidence, understanding, and knowledge of educational principles as a result of attending the session. Qualitative data highlighted key student concerns about leading teaching sessions, and benefits of attending our session.
Conclusions: Implementation of our 'Introduction to teaching' session was successful. Students felt better prepared to deliver teaching after attending, with improved knowledge and confidence. Our data highlights how undergraduate medical students may benefit from a formal introduction to medical education within medical school curricula. Attending a single introductory session could help medical students meet the GMC requirements relating to teaching and education.
Take-home messages: Medical students may benefit from receiving a formal introduction to educational theory to prepare them for teaching responsibilities as doctors. Attending a single introductory session on educational theory improves students' knowledge, and increases their confidence when teaching others.

7Z/2
Peer Teaching in Approach to Multiple Injury Conditions

Thananit Sankomkamhang (Medical Education Center, Khon Kaen Hospital, Orthopaedics, Srichan Road, District Maung, Khon Kaen 40000, Thailand)

Background: Peer teaching is one of the appropriate learning methods. Fourth year medical students were assigned to teach their peers how to approach multiple injury patients based on emergency situation at the ER. Students performed role-playing and then discussed in small group related to clinical skills and knowledge regarding multiple injuries. This study aimed to determine the effective of PEER teaching in approaching multiple injuries.
Summary of work: 163 year fourth-medical students were taught in a 30-minute introductory session about approaching multiple Injury conditions and were assigned to practice these skills with their peers under close supervision. Students were divided into two groups: teaching by peers with role-playing (PEER group) and teaching by staff with bedside teaching (Teaching group). Then clinical instructors assessed their knowledge and approaching multiple injury skills after one hour using checklist.
Summary of results: The mean score of approaching multiple injury skills and knowledge was 4.34 (0.52) and 4.1 (10.43) PEER and Teaching groups respectively. The average competency score in PEER group was statistically significant higher than teaching group (P=0.006). Students in PEER group indicated that they appreciated teaching by peers in approaching multiple injury conditions.
Conclusions: Approaching multiple injury skills and knowledge with PEER teaching in role-playing may be considered an appropriate method for medical students.
Take-home messages: PEER teaching with role-playing may be useful for obtaining other orthopaedic approach skills.

7Z/3
Student teachers' experiences in a teaching cascade scheme based around the use of a web-resource

Ryan Norman (Queen Mary University London, Barts and The London School and Medicine and Dentistry, 137 St Stephens Road, Bow, London E3 5JW, United Kingdom
Della Freeth (Queen Mary University London, Barts and The London School and Medicine and Dentistry, London, United Kingdom)

Background: There is increasing pressure for medical students to graduate with proficiencies in teaching. A teaching cascade system allows a self-directed method of improving teaching skills, whilst also improving the knowledge and skills of other students. The example in this case study is the UK's NICE (National Institute of Clinical excellence) Student Champion scheme, which is a national programme aiming to teach the use of a web-resource using a teaching cascade method. Student Champions who complete training, cascade their learning by teaching peers and evaluate their activities receive a NICE certificate recording their participation.
Summary of work: This study examined the experiences of student teachers enrolled in the Student Champion Scheme. A qualitative analysis was conducted on data from semi-structured interviews with participating student teachers.

Summary of results: The study is on-going and preliminary results suggest that the cascade system scheme improves the student teacher's own knowledge and skill in using the web-resource, beyond the expertise gained during training. General development of teaching skills combined, with official certification of teaching was viewed positively. Concerns centred on containing the time invested.

Conclusions: The NICE certification of Student Champions' work could help differentiate them from peers in a competitive market for doctor training posts. We anticipate that the teaching and content expertise gained will be useful during training posts and beyond. Student Champions improved their teaching and content expertise through engagement in cascade teaching.

Take-home messages: Cascade teaching helps the students who teach to learn more.

7Z/4
Reflections on the benefits of introducing the NICE Student Champions Scheme: An action research study

Adel Boparai (Queen Mary University London, Barts and The London School of Medicine and Dentistry, Centre for Medical Education, Turner Street, London E1 2AD, United Kingdom
Della Freeth (Queen Mary University London, Barts and The London School of Medicine and Dentistry, London, United Kingdom)

Background: The UK's National Institute of Clinical Excellence (NICE) promotes evidence-based practice (EBP) and has developed a free quality-assured web-resource, NHS Evidence. The target users are health professionals and healthcare students. The NICE NHS Evidence Student Champions Scheme promotes healthcare students' use of the resource. It provides training and certification for Student Champions who cascade their knowledge and undertake evaluation. AB and two peers led and evaluated the introduction of the Scheme within our medical school.

Summary of work: Action research: Cycle 1 (C1) comprised ethical scrutiny; recruitment of Student Champions; collaboration with faculty (academics, specialist librarians, administrators) to negotiate introduction of NHS Evidence sessions; NICE training for Champions; design and delivery of optional NHS Evidence Sessions for 246 2nd year medical students and evaluation, which included perspectives of student participants, Student Champions and faculty (questionnaires, focus groups, individual interviews and a reflexive research journal). Cycle 2 will address modifications in response to C1 evaluation, then address embedding of the Scheme in curricula.

Summary of results: Faculty buy-in was secured and, after studying the curriculum, initial focus on 2nd year medical students agreed. A series of workshops trained 10 Student Champions. Champions scheduled 4 NHS Evidence teaching sessions in February 2013. Evaluation data is being collected from all stakeholder groups.

Results to date demonstrate positive reactions and support for embedding.

Conclusions: The Scheme raised awareness of EBP, improved participants' EBP research skills and developed the Student Champions' teaching skills.

Take-home messages: Action research supported reflexive development of student-led education for EBP.

7Z/5
An effective strategy to reduce 'neurophobia' amongst medical students

Zanna Voysey (King's College Hospital NHS Foundation Trust, Denmark Hill Campus Teaching Group, Denmark Hill, London SE5 9RS, United Kingdom
Victoria Wallace (King's College Hospital NHS Foundation Trust, Denmark Hill Campus Teaching Group, London, United Kingdom)
Polly Robinson (King's College Hospital NHS Foundation Trust, Denmark Hill Campus Teaching Group, London, United Kingdom)
Meng Wang (King's College Hospital NHS Foundation Trust, Denmark Hill Campus Teaching Group, London, United Kingdom)
Rahul Kumar Mukherjee (King's College Hospital NHS Foundation Trust, Denmark Hill Campus Teaching Group, London, United Kingdom)

Background: Neurology is often considered a challenging component of the medical curriculum, with 'neurophobia' becoming an increasingly recognised phenomenon among medical students. We evaluated whether the addition of a near-peer led teaching program to existing traditional consultant teaching could help to mitigate neurophobia in our hospital.

Summary of work: 25 third-year medical students received 6-10 bedside teaching sessions from a junior doctor, in addition to traditional consultant led bedside teaching over a 12-week period. Students evaluated the program with a questionnaire pre and post-course, assessing both subjective perceptions and confidence in the specialty, and objective measures of hours of teaching/number of patients seen.

Summary of results: Neurophobia appeared to be a salient phenomenon, with only 4% of students perceiving neurology to be 'not difficult' prior to the course, and 64% of students expressing 'low or no confidence' in their ability to undertake an effective neurology history/examination. The program was successful in making a significant improvement ($p=0.026$) to this, independent of whether students had previous neurosciences experience. Despite seeing significantly more patients with consultants and receiving personalised feedback more frequently ($p=0.0341$), students rated near-peer led teaching as very useful, and equally as useful as consultant teaching ($p=0.703$). There was, however, a weak positive association between the no. of patients seen/amount of feedback received with senior doctors and confidence in neurological examination ($R2= 0.25$) which was not seen in near-peer teaching ($p=0.895$).

Conclusions: Combining a near-peer teaching program with traditional teaching may help to reduce neurophobia. The program could be improved further by training juniors in delivering feedback to students.

7Z/6

Near-peer teaching programme in Kent, UK: impact on final-year medical students preparing for practical exams

Adam Dennis (Queen Elizabeth Queen Mother Hospital, Medicine, Margate, United Kingdom)
Dilip Abraham (Queen Elizabeth Queen Mother, Medicine, St Peters Road, Margate CT9 4AN, United Kingdom)

Background: Near-peer learning is developing in medical education. The authors designed and delivered a weekly bedside teaching programme for final-year medical students at a district general hospital in Kent, UK.
Summary of work: Junior doctors were recruited as tutors and assigned to small groups of students in the Margate OSCE Tutoring Scheme (MOTS). The objectives of the teaching programme were to refine clinical examination and presentation skills in preparation for practical finals. Students completed pre- and post-course questionnaires.
Summary of results: 23 of 44 students completed questionnaires over two rotations, using Likert scale responses. Clinical examination skill was rated higher post-course (mean post-course 3.70/5.00 vs pre-course 3.00/5.00) as was confidence in examination skills (3.04/5.00 vs 2.50/5.00). Students felt better prepared for final exams (3.00/5.00 vs 2.80/5.00) and better able to present their findings (3.13/5.00 vs 2.70/5.00). The direct impact of MOTS was assessed post-course. 73% of students felt MOTS had improved their clinical skills, with 78% reporting improved confidence in their findings. 73% felt more confident in presenting and discussing findings. Limitations include: partial response rate, small sample size, the impact of other teaching the students received.
Conclusions: MOTS is a successful course for providing clinical teaching and exam preparation to final-year medical students. Arrangements are in place to carry this project forward to subsequent student cohorts.
Take-home messages: This project supports the literature that near-peer teaching is useful in preparing medical students for practical exams. Teaching programmes can be created by junior doctors at district general hospitals. Our results highlight a further role in developing presentation ability.

7Z/7

A near-peer teaching programme developed and delivered by recent medical graduates

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Background: The General Medical Council recommends teaching as a requirement for all doctors, and there is an emphasis on teaching in the Foundation Year 1 (FY1) curriculum. However, FY1s are normally only involved with adhoc ward-based teaching of medical students, with more formal teaching delivered by more senior trainees. We aimed to develop a structured teaching programme for final year medical students and evaluate its efficacy.
Summary of work: We devised a "twilight" programme, enabling FY1s to teach final year students within a scheduled programme providing 7 hours of weekly teaching over 16 weeks. Over 50% of teaching involved small groups (< 8), with most sessions scheduled after 5pm. Students provided feedback after each session, and completed an exit questionnaire. An FY1-led committee organised the programme, with focus on areas that FY1s found difficult as students and on OSCE skills.
Summary of results: Students found find near-peer teaching useful and effective. Teaching by junior doctors was considered more useful for exam preparation and students felt more at ease with FY1s. FY1 volunteers were plentiful, with only one teaching session cancelled. However, FY1s were often delayed on the ward, resulting in late starts and larger teaching groups than planned.
Conclusions: FY1s can successfully design and deliver teaching programmes for medical students. Twilight teaching enables uninterrupted bleep-free teaching. Teaching committees ensure shared responsibility and aids sustainability as teaching programmes can be handed over and improved yearly.
Take-home messages: FY1s can provide a structured teaching programme – recent graduates may be better placed to provide exam-focussed teaching and a teaching committee can facilitate this.

7Z/8

Supervision of medical students in Preparatory Vocational Training by junior doctors - a follow up study

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Background: Junior doctors undergoing medical internship at the Sahlgrenska University Hospital frequently supervise medical students. During the first two years of Medical School a course in Preparatory Vocational Training is offered, recently including junior doctors as supervisors. The first evaluation spring 2012 showed very positive results from both students and junior doctors and our study is a follow up.

Summary of work: A supervisor and four students meet during three interactive sessions in a clinical setting, focusing on personal and professional development through feedback and reflection. At the end of the course a questionnaire was used to evaluate the experiences of both the students and the supervisors.

Summary of results: All medical students recommended that junior doctors should continue to supervise medical students and were also very satisfied, reporting a mean value of 4,7 (fall 2012) compared to 4,0 (spring 2012) (scale 0-5, worst - best). The students also reported increasing mean values in fulfillment of the course aims during 2012, e.g. "I was introduced to patient centered care", from 3,9 (spring) to 4,5 (fall). The supervising junior doctors expressed that supervision helped them in their own professional development and made them reflect over their role as doctors.

Conclusions: Becoming a clinical supervisor early in the career ensures that supervision becomes a natural part of the clinical work. This study strengthens the fact that despite limited clinical experience it is possible to facilitate professional development in both students and junior doctors without forsaking to fulfil the course aims.

Take-home messages: Junior doctors are excellent as supervisors for medical students, and it also helps them in their own professional development.

7Z/9

A feedback-centered medical education elective curriculum for residents

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Background: Residents play a strong role in educating their colleagues, yet few residency programs have incorporated formal teaching programs into their curricula. Current programs range from one to fifteen hours, employ a variety of instructional methods, and lack an objective means of evaluation. To date, there has been no report of a comprehensive, feedback-driven, resident teaching curriculum.

Summary of work: We aim to develop and evaluate a four-week curriculum providing a foundation in medical education theory and a variety of teaching experiences. The elective resident will be assigned a preceptor, identified as an expert in medical education. The resident will complete one week of preparation and readings on pertinent education theory, followed by three weeks of directly observed teaching activities,

including undergraduate small group case-based sessions, communication skills and physical exam teaching, procedural skills teaching, and morning report.

Summary of results: The resident will receive verbal feedback from the preceptor following each teaching session, and paper-based feedback by both the preceptor (mid-way and final evaluation) and the students (at the end of each session). Likert-based surveys will be completed by the resident, preceptor, and small group students at the beginning and end of the three weeks to obtain an objective measure of perceived resident teaching efficacy.

Conclusions: We have obtained approval from both our residency planning committee and undergraduate medical education program. We plan to pilot this project and begin data collection in June 2013.

Take-home messages: A structured, four-week elective in medical education theory and application may enhance resident teaching skills, promote medical education, and improve learner satisfaction.

7Z/10

Peer teaching benefits teachers as well as students: A qualitative study of teachers' feedback in a teaching programme for new anaesthetic trainees

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Background: Despite benefits to teachers and learners (Ten Cate & Durning, 2007) there is little evidence that peer teaching benefits trainee anaesthetists. We delivered a teaching course, over 3 months, where registrars volunteered to teach areas of the core curriculum to novices. Our evaluation focussed on the registrar-teachers to include 1) reasons for volunteering 2) the execution of each session 3) the perceived benefits gained from teaching and 4) the place of teaching skills within the anaesthetic curriculum.

Summary of work: Each registrar-teacher (n=3) was sent a questionnaire via email after completing his/her teaching session. The response rate was 100%. Two independent researchers using thematic analysis interpreted the responses.

Summary of results: Registrars volunteered for their own gains (3/3). Despite previous training in teaching skills (3/3), few conducted an evaluation nor delivered any feedback (1/3). Self-perceived benefits gained were teaching techniques & presentation skills (2/3), revision of knowledge (3/3), an increase in confidence (as a teacher (2/3) and senior doctor (1/3)) and communication skills ((2/3) related to increasing the learner's understanding of knowledge). Most registrars stated training-to-teach had not been included in their specialty training (2/3), but felt that it should (2/3).

Conclusions: The study suggests near-peer teaching within anaesthesia has benefits which are in keeping

with previous studies. Despite previous training in teaching skills, key areas of educational methodology seem to be omitted. The inclusion of medical education within the anaesthetic curriculum therefore needs addressing.

Take-home messages: Near-peer teaching may have a positive role in the professional development of registrars. Training in medical education should be part of specialty training for anaesthetists.

7Z/11

Faculty Development Through Social Enterprise: Coaching and Peer-Assisted Learning Course for Membership Examination Revision Within Obstetrics and Gynaecology

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Greg Ward (London Deanery, London Specialty School of Obstetrics and Gynaecology, London, United Kingdom)

Background: With the introduction of competency based, time-limited training in both clinical and academic areas, there is a risk that trainees may lose their training number if competences are not achieved within curriculum defined time frames. It has been made explicit that Deaneries are expected to facilitate learning for all components of the curriculum using a diversity of methods.

Summary of work: With significant numbers of trainees struggling to pass membership, the London Specialty School of Obstetrics and Gynaecology (LSSOG) has developed and run successful Part 1 and Part 2 MRCOG Revision Courses since 2009.

Summary of results: These peer-assisted courses promote the development of a 'community of practice' where teaching is viewed as a 'social practice' and learning occurs through participation rather than acquisition. Over the past four years, no candidate has been removed from the training programme for failing to pass Part 2 with the number of previous attempts ranging from 2 to in excess of 5. Only one candidate has left the programme for failing to pass Part 1.

Conclusions: Feedback from course evaluation shows that the teaching and learning practices used address both the needs of the 'trainee in difficulty' and promote faculty development. Former delegates graduate to teaching on the programme thus facilitating the development of sustainable teaching and learning methods as well as adopting and implementing the NHS ethos of 'shared leadership'.

Take-home messages: With the introduction of peer-assisted learning, we have been able to support those London Deanery trainees in difficulty whilst enabling a community of practice to develop and promote faculty development.

7Z/12

Teaching on the Emergency Department Shop Floor (TEDS) Course - A novel approach to developing the clinical teacher

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Peter Cull (Royal Derby Hospital, Emergency Department, Derby, United Kingdom)

Background: Current options for the doctor looking to improve their teaching skills are limited; TIPS (Teaching Improvement Programme System) and TACS (Teaching and Assessing Clinical Skills) are widely available but usually aimed at foundation trainees. Masters level qualifications in medical education are geared towards those with a long-term career focus on education and require a substantial commitment. Emergency Physicians (EP) looking to improve teaching abilities whilst undertaking clinical duties have previously had limited speciality or situation specific educational opportunities available to them.

Summary of work: The TEDS course is unique in its scope to fulfil the educational needs of the practicing EP. It is focussed on providing vital knowledge and skills to improve clinicians' abilities to teach within the hectic shop-floor environment of the modern Emergency Department (ED). It combines educational theory with the practical application of teaching skills and provides various simulated environments in which these skills can be practiced. The course ran at the Royal Derby Hospital in November 2012 and was delivered to an enthusiastic cohort of 12 attendees; it combined interactive lectures with skills stations providing an opportunity for the practical application of acquired knowledge with immediate feedback.

Summary of results: Candidate feedback was overwhelmingly positive. It focussed on two areas; the unique nature of the course and the learning need it fulfils, and the provision of volunteer medical students on whom candidates could hone their teaching skills.

Take-home messages: The course is scheduled to take place again in May 2013, and further dates will be made available as demand dictates.

7Z/13

The Associate Unit Tutor (AUT) one year on: Evaluation of an innovative programme for trainees to develop as educators

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Background: Developing teaching and supervision skills is an essential part of medical training. Although trainees have always taught, opportunities to take on formal educational roles have been limited. In AWP undergraduate psychiatry teaching is delivered across 6 sites, each with a Consultant psychiatrist Unit tutor. We developed the Associate Unit Tutor: a formal, extended role, aligned to recognised educational standards, which senior trainees apply for through a competitive process. They share the Unit tutor's responsibilities, with a focus on developing new learning approaches and opportunities.

Summary of work: After one year, we sought to evaluate the role using medical student feedback, and a qualitative, free text questionnaire given to all site tutors, and AUT post holders. We also reviewed whether the role had turned out as envisioned, along with each AUT's educational achievements.

Summary of results: All site tutors have found the role to be extremely helpful, even if initially sceptical. The AUTs found the support and structure of the role invaluable, and all agreed they felt more confident in medical education and delivery of teaching after the experience. Using medical student feedback processes already in place, AUTs were more likely to be mentioned as exceptional educators than any other professional group. All stakeholders agreed the posts should continue.

Conclusions: The associate unit tutor role is valued by post holders, unit tutors and medical students. It should continue to be developed and supported.

Take-home messages: A formalised education role is a great way to improve teaching, and to support trainees in developing as educators.

7Z/14
Expansion of graduate medical education networks for young doctors in Japan through the initiative of Young Doctors' Federation in Kansai (Kan-fed)

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Background: A new network of graduate medical education (GME) is needed to fill a considerable quality gap in training among residency programmes in teaching hospitals.

Summary of work: A small group comprising 10 core members established an academic network among young doctors in Kansai area. Our mission was to provide stimulating, non-sponsored, multicenter clinical conferences for medical residents. We have provided regular conferences containing workshops and presentations since 2008. The conferences covered a great variety of content, including the following; History-taking, Physical examination, Google medicine, ER simulation, Cessation of smoking, Communication skills, and Work-life balance. The presentation movies are freely accessible on our website. Furthermore, we have supported holding of new conferences in response to requests from young doctors in other regions. Outcomes; a) The number of the participants; b) Participants' satisfaction; c) The number of visits to the presentations on the website; d) The details of the support.

Summary of results: We arranged 13 conferences from August 2008 to December 2012. The total number of participants was 620, including young doctors and medical students in 114 facilities from around Japan. Mean score of satisfaction was 4.68 (SD=0.60). The total count on the website was 16941. Additionally, we supported three other networks in Hiroshima, Tohoku and Ehime. In each area, subsequent conferences have been held without our help.

Conclusions: We voluntarily established a unique network for GME in Kansai. In addition, we successfully supported three other medical networks.

Take-home messages: We have founded non-sponsored and coordinated educational network, which is steadily expanding throughout Japan.

7Z/15
Teaching Residents to Teach – An Evaluation study

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Jose Francois (University of Manitoba, Continuing Professional Development, Winnipeg, Canada)

Background: Effective teaching is essential to medical education, however, many residents teach during residency without instruction on how to teach. Studies reveal that up to 25% of residents' time is spent teaching students. In Canada, accreditation standards dictate that residents should be prepared for their roles as teachers. Thus, a teaching skills curriculum should be an element of all residency programs.

Summary of work: We developed a two, half-day workshop program for resident teaching skills training (RTDP), incorporated into the core curriculum at the University of Manitoba. These workshops replaced 'Teaching Improvement Projects (TIPs) that was introduced in 1997. We evaluated the effectiveness of RTDP using surveys combined with more objective student teaching evaluations.

Summary of results: Our analyses comparing residents' opinion towards teaching before and after the training workshop revealed significant differences in attitudes related to understanding their role as a teacher and planning their teaching encounters. We contrasted

attitudes from experienced residents to those in primary residency and discovered that more senior residents had a significantly clearer understanding of the process of providing learners feedback. A comparison between the RTDP and TIPS validated RTDP as comparable to TIPs for teaching effectiveness, a significant improvement as RTDP utilized fewer contact hours.

Conclusions: Teaching residents to teach is an essential skill that can be efficiently delivered over a two-half day period to produce confident, skilled mentors for medical students.

Take-home messages: Residents should be provided with effective teaching skills to become proficient educators and skilled mentors for medical students.

7Z/16

Learning through work: clinical shadowing of junior doctors by first year medical students

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Deborah Gill (UCL Medical School, Academic Centre for Medical Education, London, United Kingdom)

Background: Early clinical contact (ECC) is a key feature of undergraduate programmes, yet they are usually limited to intermittent contacts with patients in the community. Our aim was to explore the potential of an ECC activity focussing on the clinical environment and the working lives of a junior doctor for first year medical students.

Summary of work: For two academic years, all first year medical students at UCL Medical School shadowed a Foundation Year (FY) doctor for a four-hour shift to experience and understand the work of junior doctors. Feedback from students and FY doctors was gathered and analysed.

Summary of results: The students found the FY doctors to be good near-peer tutors and enjoyed exploring the clinical environment, but felt that the unstructured learning environment was difficult to cope. The FY doctors felt that learning in and about the clinical environment was an important learning outcome for the students, although they found supervising junior medical students in a shadowing context difficult.

Conclusions: Shadowing FY doctors early in the curriculum provided medical students an opportunity to effectively explore and integrate, albeit briefly, with the medical culture. FY doctors, as their immediate role models, were an effective and under-utilised resource in introducing novices to the role of a medical professional in the clinical environment.

Take-home messages: Early clinical contact does not necessarily have to be limited to patient contact or placements, and a short shadowing experience with junior clinicians can have a significant impact on students.

7AA Posters: Community Oriented Medical Education/Public Health
Location: Terrace 2

7AA/1

The general practice and family medicine rotation - how involved are students in patient consultation?

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Background: A general practice and family medicine rotation is mandatory as part of undergraduate medical education in Germany. However, little is known about student-teacher interaction which takes place in this setting. We aimed to gain quantitative and qualitative information concerning various points of interest. The level of student involvement in patient consultation is one of them.
Summary of work: From April to December 2012 two researchers collected structured field notes of 410 individual patient consultations in twelve teaching practices associated with Marburg University, Germany. Informed, written consent was provided by all participants. For the categorization of student involvement, we developed a multi-step hierarchical scale from passive to different modes of active involvement. Multiple categorizations were possible.
Summary of results: Passive student attention was the most common mode of teaching, occurring in 78.3% of all consultations. Allocation of single tasks or demonstration of findings by the GP occurred in 50.7%, and some form of student consultation in 32.2% of observed cases. Student consultation under direct GP supervision occurred in just 5.9% of consultations.
Conclusions: Whereas most consultations during the family medicine rotation include passive student behavior, direct supervision of student consultation is scarce. This leads to the question whether GPs would benefit from further training in this area.
Take-home messages: Passive attention is currently the most frequent, and supervised consultation the rarest mode of student involvement during the family medicine rotation.

7AA/2

Integrating curriculum: the experience of a construct in medical school in Brazil

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Patricia Oliveira (Unifenas, Public Health, Alfenas, Brazil)

Background: Community-based learning is a pedagogical strategy for curricular integration. It helps to develop skills and attitudes, to promote teamwork and to understand determinants of health.
Summary of work: In 2011, we started to integrate contents from 1st term, through discussion in small groups about their experience in primary health care. At the end of the each term the activity is evaluated by the students using a structured questionnaire, observing Kirkpatrick level 1 (2010).
Summary of results: Students consider the strategy appropriate, highlighting: the relevance of education (82.1%), improvement of clinical reasoning (81.7%); integration of promotion, prevention, reasoning clinical, diagnosis and treatment (78%), teamwork (73.5%); integration of content (72.4%). By associating questions and terms, it was better evaluated by the 1st term. It was significant for: integration of promotion, prevention, clinical reasoning, diagnosis and treatment (OR=8.3/p=0.000); integration between clinical areas (OR=5.4/p=0.000); relevance of the subjects (OR=4.1/p=0.003), improvement of clinical reasoning (OR=2.6/p=0.030); integration of content half (OR=6.1/p=0.000).
Conclusions: Community-based education facilitates the transformation of the student, as they take part of real experiences. In these cases, reality provides to the learning process more meaning and power, contributing to clinical reasoning. Although all students consider the experience beneficial, younger students are more receptive than the others to innovative proposals.
Take-home messages: The active learning and approximation to reality, using community-based learning as pedagogical strategy, allow integration of scientific and clinical contents.

7AA/3

Does "Learning the Life of Rural Doctor" change learning outcomes?

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Background: Most medical graduates in Thailand have to work in community hospitals in the first 3-year of professional practice. Preparing them for working in the community hospital is important. "Learning the Life of Rural Doctor" course in preclinical year would help students and promote attitude of working in rural area.

Summary of work: To investigate student self assessment about changing in learning outcomes of self-selected "Learning the Life of Rural Doctor". This elective course was in the 3rd of 6-year curriculum and took place at the community hospitals. Thirty one medical students choose 8 hospitals across the country to live and learn. Survey by questionnaires about 8 learning outcomes was done before starting and after completing the course. Rating scale 1 to 5 was used to quantify students' perception of their ability.   Additional course feedback was allowed. Wilcoxon Signed Ranks Test was used for the statistical analysis.

Summary of results: All students responded and perceived that all of 8 learning outcomes are significantly increased after course completion. The main reasons of students choosing this course were to learn about the life of rural doctor and the real environment of healthcare system in their future working place and to develop and promote their good understanding of the medical profession. All students achieved their objectives and were satisfied with this course.

Conclusions: The 2- week course of learning the life of rural doctor is useful for preclinical year medical students to understand healthcare system and life of rural doctor. The students' perceptions towards 8 learning outcomes are increased. Medical students develop good professional attitude and prepare themselves for working in community hospital after graduation.

Take-home messages: Learning in the real world at the community hospitals help medical students develop their good professional attitude and prepare themselves for working as a rural doctor.

7AA/4
Analysis Results and Development Strategies for Community Study Report of Medical Students, Thammasat University, Thailand

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Background: The second and third year medical students of Thammasat University have community-based learning, which is to stay in rural communities for 10-14 days in a year. Group report is included for evaluation; therefore, analysis and searching for development strategies of report are needed.

Summary of work: This is a documentary research, in order to analyze and search for development strategies of medical students' community study reports. Data are continuously collected from groups' reports of medical students on the academic year 2010-2011: the second year focuses on community approach, and the third year focuses on health promotion in the same community, 32 reports.

Summary of results: The strong points: student learning outcomes are covered. Descriptive presentation on community data is good, and the reports follow a

determination format. The weak points: related literature review for application and reference, and presentation should be improved: table, line graph, bar chart, pie diagram. Analysis and synthesis are not good. For development strategies: searching document or providing weak guidance is needed, including exemplifying and increasing skills training.

Conclusions: The strong points: learning outcomes are clear. Descriptive writing on community data is written by observation. Reports follow a determination format. The weak points: because of medical students' inexperience on application, the reports are not good. For development strategies: focusing on education management is needed, in order to improve writing comprehension skills, which will be useful for medical students in the future.

Take-home messages: Providing guidance on report writing skills and students' report writing skills training should be improved.

7AA/5
Graduate reflections on a year-long rural training experience: clinical exposure that really counts?

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Hoffie Conradie (Faculty of Medicine and Health Sciences, Stellenbosch University, Family Medicine, Tygerberg, South Africa)
Norma Kok (Faculty of Medicine and Health Sciences, Stellenbosch University, SURMEPI, Tygerberg, South Africa)
Ben Van Heerden (Faculty of Medicine and Health Sciences, Stellenbosch University, Centre for Health Professions Education, Tygerberg, South Africa)
Marietjie De Villiers (Faculty of Medicine and Health Sciences, Dean's Division, Tygerberg, South Africa)

Background: In 2011, the first cohort of eight medical students spent their final year at the Ukwanda Rural Clinical School (RCS). Simultaneously, a longitudinal evaluative project commenced with a formative study investigating the influence on teaching and learning at the site during this first year of implementation. The second year of the project tracked the cohort, now graduates, to discern how their RCS year influenced their thinking and practice.

Summary of work: Focus group discussions were held with the cohort before entering the RCS followed by in-depth interviews in 2011 and in 2012, during their first year of internship. For each intern, a supervising clinician was interviewed. Drawing on these four data sets, Kirkpatrick's model for evaluating educational outcomes was used to develop a hierarchy from the participants' views.

Summary of results: The chronological analysis demonstrated how initial uncertainties about attending

the RCS had shifted. The graduates described their confidence in their clinical skills and how the RCS experience had prepared them for internship despite the challenging circumstances that characterise the South African public health system. This was often confirmed by the intern supervisors. The results demonstrate progression through the levels of Kirkpatrick's model. Attitudes, skills and knowledge were modified during the RCS year (Level 2a&b), followed by a change in behaviour (Level 3) and ultimately, in professional practice (Level 4a).

Conclusions: This study confirms claims regarding the potential of an extended rural clinical experience to effect transformative learning. Benefits to patient care need to be explored.

Take-home messages: Extended rural clinical exposure offers authentic, relevant learning opportunities.

7AA/6
Medical students' attitudes toward experiences in community hospitals of rural area

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Sorarat Lermanuworat (The Medical Education Center of Maharat Nakhon Ratchasima Hospital, Orthopedic Department, Nakhon Ratchasima, Thailand)
Maesar Srisukanya (The Medical Education Center of Maharat Nakhon Ratchasima Hospital, Psychiatric Department, Nakhon Ratchasima, Thailand)

Background: Community-orientation involving rural doctors is one of the medical education strategies to raise interest in rural medicine and a desire of being a rural doctor. The attitude of medical students who are involved must to be identified and explored in order to improve the rural training experiences provision.

Summary of work: An innovative training model was constructed for 49 fourth year medical students. Pre-exposure, they set the objective, process, and evaluation. Post-exposure, each subgroup shared and learned among their 3 groups with teachers. Six months later, focus group and in-depth interview was applied to collect data from the representatives. It was tape recorded and then transcribed after getting permission from the groups. Content analysis was used to analyze and the multiple analysis triangulation was done to ensure reliability.

Summary of results: Students experienced living in community hospital and working with community. Rural doctors as role model, community hospital systems, teamwork, management, relationships were identified. They were aware of roles of rural doctors, shortage of rural doctors, and relationships. These resulted in a positive attitude of roles of rural doctor, teamwork, relationships among health care workers, patients, and medical students, and learning improvement. They

could predict their roles of working as a rural doctor in a community hospital in the future and satisfied their roles.

Conclusions: Many experiences in community hospital increased medical students' awareness of roles of rural doctors. They had a positive attitude of learning improvement and being rural doctors.

Take-home messages: Experiences of living in community hospital influence medical learning improvement and desire of being rural doctor.

7AA/7
Program Evaluation of a Community vs. a Tertiary Care Internal Medicine Clerkship

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John J Leddy (University of Ottawa, Medicine, Ottawa, Ontario, Canada)
Claire Touchie (University of Ottawa, Medicine, Ottawa, Ontario, Canada)

Background: Studies have considered whether students undertaking their clerkship training within community hospitals (CH) have a similar learning experience to those placed at tertiary care centres (TCC). The goal of this study is to compare and contrast internal medicine (IM) clerkship streams at the University of Ottawa, one at a TCC and one at a CH.

Summary of work: Data from formative assessments were analyzed. Continuous variables used an independent ANOVA and categorical data used a chi-square to determine differences. Written feedback will be analyzed using a qualitative grounded theory iterative approach.

Summary of results: In the 2009 and 2010 cohorts, TCC students significantly outperformed those at the CH in pre-clerkship examinations. The same was true for the IM clerkship examinations. In the 2011 cohort, the differences were much less substantial for pre-clerkship and insignificant for the IM clerkship examination. The end-of-clerkship OSCE scores did not differ between the two streams in any cohort. Students' rotation feedback results are pending.

Conclusions: While there were significant differences between the TCC and CH students on their IM clerkship examination in cohorts 2009 and 2010, the same was true in pre-clerkship. In the 2011 cohort, the TCC and CH streams were more similar in pre-clerkship and there was no significant difference between their IM clerkship examination grades. These differences may be related to the student cohort and not to the site of training.

Take-home messages: Measured outcomes of the two IM clerkship streams are equitable. Further study is needed to explore students' perceptions of the IM clerkship from each site of training.

7AA/8
A Curriculum for the Community

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Background: When the University of Botswana (UB) opened the country's first School of Medicine (SOM) in 2009, the decision was made that medical students should be introduced to the community right from their medical training's onset. This study will guide UB SOM to come up with a curriculum for first and second year medical students' community placement module.
Summary of work: Purposively selected key informant interviews were conducted among education experts, health services experts and leaders at the UB Faculty of Health Sciences. Semi-structured interview guides were used to elicit the respondents' understanding and suggestions regarding a rural placement curriculum design. Recorded data was transcribed and coded.
Summary of results: The following themes were identified as required elements of a community placement curriculum: Curriculum design that includes clearly aligned outcomes, integrated multiple forms of assessment, and contextualized learning. Course elements entailing community needs assessment and intervention. Guiding values that support social accountability, holistic health definition, problem based learning and systems thinking. Logistical considerations included transport, accommodation and nationwide student placement sites. In order for health professionals to make a difference in their communities, they need to work in communities they will serve and find long lasting solutions to the community's needs.
Conclusions: There is continuing support for UB SOM medical students to have community placements from the onset of their medical training.
Take-home messages: Conducting key informant interviews on the issue of community placement can provide valuable input for the development and implementation of a socially accountable community placement curriculum.

7AA/9
Teaching patient-centered Medicine through community-based practice

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Background: Communication skills are not developed as part of the medical teaching. However, the comprehension of the biological phenomena and the care in the hospital context have been one of the factors associated with the graduation of low empathy professionals.
Summary of work: A Clinical and Psychosocial Anamnesis module was inserted in UNIFENAS Medical Course forth year, focused on medical interviews, developed through the patients complaints and experiences, to get a practical clinical anamnesis and to develop principles and techniques of psychological listening, performed at Primary Care Services and through domiciliary visits. A qualitative evaluation of these experiences is presented.
Summary of results: Students answered a semi-structured questionnaire and identified six positive aspects of this experience: "Reality contact", "Theoretical content applied to practical context", "Holistic care comprehension", "Rapport experience in the teacher-student-patient relationship", "Communication skills development" and "Meaningful learning". The negative points were: "Non-adhesion to the person-centered clinical assistance by some service doctors", "Lack of a structured guide for student orientation", "Difficulty to deal with patient refuse" and "Credit hour extended for some and small for others".
Conclusions: Approach with the community and the patients in their environment were fundamental to better understanding of some doctor-patient relation theoretical aspects. Disease is not the only intervention target: there is an autonomous subject, supported by holistic and familiar approaches.
It is required and possible to rescue the care and education arts at the same time, as an experiential learning process, in the coexistence among equals.
Take-home messages: Medicine is definitely an art that can cure sometimes and often relieve, but should always comfort.

7AA/10
A patient centered approach for teaching about the organisation and functioning of the health care system at VU University medical center, Amsterdam, The Netherlands

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Olga Damman (VU University Medical Center, Public and Occupational Health, Amsterdam, Netherlands)

Background: Medical students need knowledge of the organisation and functioning of the health care system, because they are a part of it when they are a medical doctor. But also they need awareness of (chronic ill) patients in relation to the health care system.

Summary of work: During a two weeks course for second year medical students, students are split in 6 main representatives of the health care system (e.g. health insurances company, patient organisation, general practitioner, hospital, home care institution and municipal health services). By small group sessions and visits to these organisations students have to prepare a health care project for chronic ill patients with the outcome of better care.

Summary of results: The course was well received and attended by the medical students who valued it for the relevance to medicine and interactive nature.

Conclusions: Students and representatives of the health care system enjoyed this new innovative approach to teaching. Representatives of the health care system were also impressed by the discussion and question-asking by students at this early stage of their medical training.

Take-home messages: Chronic patient oriented courses with attention to the organisation and functioning of the health care system within the early years of medical school should be encouraged. Active collaboration of representatives of the health care system and planning are the keys to the programme's success.

7AA/11
The Benefits of Introducing Foundation Trainees to Community-Based Health Promotion Clinics

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Background: The General Medical Council (GMC) is putting increasing emphasis on trainee doctors gaining exposure to community-based medicine and teamwork, alongside other healthcare professionals. Opportunities in the UK are limited, with foundation doctors being based primarily in hospital particularly in their first year following graduation. This leads to a lack of experience in recognising and managing long-term conditions.

Summary of work: We developed walk-in health promotion clinics, where foundation doctors work alongside specialist nurses, dieticians, podiatrists and senior doctors to screen and provide advice to the local community. Questionnaires were issued before and after such events, and introductory and debrief sessions used to examine learning outcomes.

Summary of results: Forty foundation doctors participated in the initiative. Participants reported greater confidence in managing long-term conditions and improved communication skills with patients and health professionals. Foundation doctors also felt more valued as members of the team and benefited from interdisciplinary teaching.

Conclusions: Working closely with other healthcare professionals promotes interdisciplinary learning, with effective use of each specialist's knowledge and skills. This in turn ensures accurate advice is conveyed to patients, and adopted by trainee doctors for future practice. Communication skills also improved as doctors needed to adapt to patients' needs and abilities. Health promotion clinics allow foundation doctors to develop important skills in managing long-term conditions through interdisciplinary teaching and greater opportunities to apply knowledge. This also provides opportunities to develop teamwork and communication skills, and leads to doctors with greater experience in preventative medicine.

Take-home messages: Health promotion clinics help trainees become better doctors and should be developed across more institutions.

7AA/12
Community mental health promotion project enhances mental health awareness

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Background: Community mental health promotion (CMHP) Project is a part of learning experience in clinical psychiatry rotation of fourth-year medical students at Faculty of Medicine, Vajira Hospital. It provides real experience in mental health promotion as well as treatment in the community setting. The objective of the study is to evaluate the outcomes in terms of satisfaction and test scores.

Summary of work: Two-day activity was provided. In day 1, students with medical teachers, who were from departments of psychiatry, public health and community volunteers, explored community mental health problems, summarized and planned the activities in urban communities. In day 2, they administrated planned activities and concluded the program. The program was evaluated in terms of participation satisfaction and post-test.

Summary of results: The mean satisfactory rate of people was 91.66% and post-test improved in every group. From medical students' perspective, they thought it was useful (86.93%), easily able to make use of experience in the future (96.63%), more aware of the mental health promotion (93.63%). Their overall satisfaction was 90.10%.

Conclusions: The students learned experiences of mental health promotion in real settings. People gained knowledge, attitude and practice about promotion of mental health.

Take-home messages: The institution can provide academic services and teach students of mental health promotion concurrently by using activities designed by students in community.

7AA/13

Improving a Brazilian internship in Primary Care through collaborative practice

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Background: The internship in Primary Care from a private PBL based Medical School in São Paulo, Brazil, occurs at primary health centers (PHC). General perception was that the course mainly focused on clinical skills and students felt it was not correlated with future practice, while PHC staff felt responsible for students' training.
Summary of work: A curriculum reform was done based on international literature, document analysis and experts' opinions. Changes implemented: planning of the internship program by the students in partnership with faculty and PHC staff; monitoring of the students by a University faculty coupled with a PHC physicians; weekly seminars based on real life experiences; use of a workplace-based 360o assessment and portfolios. Three focus groups with 10-12 students, portfolios' analysis, and categorization of activities performed by the interns were used to evaluate.
Summary of results: The whole process was a time of great reflection serving as teacher development and culminating with a framework of expected Public Health competencies. The planning of activities and the seminars served as milestones for the course, shifting its focus from medical care to management and leadership skills. Preliminary analysis showed that students seemed to acquire the expected competencies.
Conclusions: Both the joint planning of activities and 360oassessment contributed to PHC staff becoming more involved and committed to students' training. Students became active stakeholders of their learning and appreciated the coherence of curriculum, integrating theory and practice.
Take-home messages: A recommendation for internship in Public Heath is to involve all stakeholders in its elaboration and promote collaborative practices among staff, students and teachers.

7AA/14

Evaluation of health promotion teaching in 5th year medical students

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Background: To evaluate the achievement of Health promotion which consist of: 1) to identify common problem in family practice at PCU. 2.) to propose strategic plan for health promotion regarding the program in target groups. 3.) to implement intervention to target groups. 4.) to reflect what students learn from experiential learning classroom-based session. We have integrated this curriculum into family practice at Primary Care Unit (PCU) setting for 3 years.
Summary of work: This descriptive study evaluated 123 5th year medical students from 2010 to 2012. All students had 4 weeks' experience in this curriculum as follows: 1.) 2 hour lecture and groups discussion at the beginning of the course. 2.) during the course students practicing family medicine at PCU, reviewed the common problem, completed a strategic plan for health promotion in target groups and approved the plan by an adviser at the end of the 2nd week. 3.) implemented the intervention to target group in PCU at the end of the 3rd week under the adviser's supervision. 4.) presented their results of experiential learning at the end of the 4th week.
Summary of results: Of 123 medical students, 84.2% can identify the problem in PCU, 74.6% can propose proper health promotion strategic plan in target groups, 82.8% can implement the intervention comprehensively to the target group successfully and 87.5% of them can present their result of learning experience.
Conclusions: Most of the 5th year medical students can achieve the objectives of the health promotion course.
Take-home messages: Through experiential learning in PCU, students can achieve the objectives better than learning in a classroom-based session.

7AA/15

Public health units as learning scenario for medical students

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Background: The Brazil Unified Health System (UHS) has established health as a right of all and a state duty. With restricted financial resources there were serious problems. Over the years, new financial incomes have been available, new hospitals were built, and new experts were engaged. Twenty-five years after its creation, important changes have been made in the national epidemiological reality giving assistance to needy people. Many citizens still carry prejudices about the UHS. Our aim was to assess medical students' perceptions about UHS.

Summary of work: Fifty-three medical students of the first year participated in 3 activities in public health units and after that their perceptions about how the UHS works was assessed through questionnaires.

Summary of results: In general, students consider the UHS disorganized with fragile infrastructure and low payments for professionals. However, most students felt that working on UHS might be a good opportunity to give assistance to people in need. The main problems in their opinion are: infrastructure (38%), time waiting for assistance (71%) and lack of physicians (38%). Students pointed out as positive aspects: free (75%) and universal (73%) assistance. To resolve these problems, 94% of the students propose actions to improve the infrastructure and humanize care practices. Only 17% suggest better payments.

Conclusions: Students recognize more negative than positive aspects in Brazil UHS but they consider UHS as an opportunity to deliver assistance to the most needy population range.

Take-home messages: Activities in the local public health units can be a powerful tool for helping medical students understand the UHS and can be used as a trigger for important related discussions.

7AA/16
Population Health Intensive: Engaging senior medical students in public health

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Background: Engaging medical students in public health is typically very challenging in New Zealand as elsewhere. Over six years we have developed and implemented a program for final year students that evaluations show succeeds in engagement and high ratings of relevance. This paper outlines the rationale, format and structure of the program and the results of study and faculty evaluations.

Summary of work: We developed a week-long program combining team-based small group learning and work using public health strategies to tackle a public health issue within resource-constraints, supported by trained facilitators; as well as exposure to a range of community-based organizations and clinical and public health role models.

Summary of results: Ratings by students of interest and in the relevance of public health to their future medical careers and usefulness of public health frameworks in

medical practice have been sustained at high levels over six successive years. Key success factors include setting high expectations of professionalism, use of clinician role models who use public health approaches in their work, collaborative small group work with community group exposures to deliver outputs and formal assessment of these outputs.

Conclusions: Engaging students with public health ideas and models is achievable but requires creative approaches to learning with regular adjustment to maintain currency and relevance of topics and tasks.

Take-home messages: Despite the challenges of interesting students in a non-clinical area such as public health, sustained high levels of engagement and ratings of relevance of public health are attainable with appropriate learning models, preparation and planning.

7BB Posters: Assessment: The OSCE
Location: South Hall, PCC

7BB/1
Reliability of OSCE (Objective Structured Clinical Examination) assessment comparing between face-to-face and video rating

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Background: The objective structured clinical examinations (OSCEs) have been used globally in evaluating clinical competencies. In a process, two examiners are needed to reduce examiner bias. In many settings, using two assessors simultaneously is impractical due to shortage of personnel. VDO rating may be possible to be applied for OSCE assessment. This study was aimed to evaluate video rating compare to face-to-face of OSCE assessment using the inter-rater reliability.
Summary of work: 29 fourth year medical students who took the formative OSCEs from April to October 2012 were enrolled. The five OSCEs (anemia, headache, influenza, COPD and UGIH) comprised of five-minute history-taking or patient education stations and each with one simulated patient. The students were assessed and scored by two examiners using the standardized checklists. Real time face-to-face assessment by first examiner appeared in the same room with the student was conducted first, and then the video clips were used afterward for an assessment by a second examiner. The consent forms were attained from all subjects. Correlation analysis using Spearman's rank correlation was applied by setting p-value < 0.05 as statistically significant.
Summary of results: The inter-rater reliabilities between face-to-face and video rating for all stations were considerably high as follows; anemia(r=0.87, p=0.001), headache(r=0.92, p<0.001), influenza(r=0.88,p=0.001), COPD(r=0.92,p=0.001), and UGIH stations(r=0.80,p=0.005).
Conclusions: There were high positive correlations of OSCEs assessment between face-to-face and video rating.
Take-home messages: The face-to-face ratings having positive correlations with video ratings. Consequently, it can be efficiently applied to assess medical students' clinical competencies.

7BB/2
Impact of Mock Objective Structured Clinical Encounter (OSCE) Exams on Anxiety levels during Final OSCE of Third Year Medical students of Ross University

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Background: The Advanced Introduction to Clinical Medicine department offers 8 weeks of clinical exposure and clinical skills training with the use of standardized patients, to third year medical students. At the end of the semester, their clinical competency is evaluated with the use of an Objective Structured Clinical Examinations (OSCE). This study was undertaken to determine the usefulness of mock OSCE exams as it relates to its effect on anxiety levels and performance on the final OSCE. The Beck's anxiety scale was administered prior to both the Mock and Final OSCE in an attempt to document the students' level of anxiety.
Summary of work: Each student in the Advanced Introduction to Clinical Medicine semester at Princess Margaret Hospital participates in a MOCK OSCE prior to their Final OSCE. Students were given an informational sheet explaining the purpose and procedure of gathering information. The anxiety scale responses were tabulated and compared using Wilcoxon rank test for paired data. OSCE performance scores on both mock and final were also compared using a t-test.
Summary of results: When compared to Mock OSCE performance, student performance scores were increased on the final exam. In comparison, anxiety levels appeared to remain relatively constant prior to both exams (p =0.69).
Conclusions: Though anxiety levels prior to exams did not show a statistically significant change, OSCE performance increased on the final exam. Maintenance of anxiety therefore does not seem to negatively impact student performance.
Take-home messages: The Mock OSCE appears to help improve student performance on the final exam, irrespective of anxiety level.

7BB/3

Reliability study of OSCE in a Woman's Health station at Public Health of the clerkship students' examination in a Medical University at Universidade Federal de Uberlândia (FAMED-UFU)

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Background: Traditionally, the clerkship students' assessment in Public Health FAMED-UFU has been performed by multiple choice questions and subjective global evaluation. Since 2010, the OSCE was added as a new tool for assessing these students. The aim was to check the reliability of the OSCE in students' assessments in a Woman's Health station, at a boarding in Public Health FAMED_UFU.
Summary of work: Cross-sectional study analyzing the checklist final grade of the clerkship students in Public Health in a simulated scenario of Women's Health of the OSCE in October 2012 in FAMED-UFU. Each one was assessed by two examiners simultaneously. The grades of each student were compared by pairs of observers using the Wilcoxon test, considering p <0.05 to establish statistical significance.
Summary of results: Forty one students were included, randomly divided into two groups. Group 1 = with 20 students assessed by examiners A and B, and group II = with 21 students assessed by examiners C and D. There were no statistically significant differences in student assessment between examiners A and B (p = 0.129) and between examiners C and D (p = 0.279).
Conclusions: The OSCE is a reliable tool for assessing students at the Women's Health station in a Public Health boarding of FAMED-UFU.
Take-home messages: The OSCE test can be used for selection of clerkship students' graduation exams (high-stakes tests)

7BB/4

Clinical skills assessment revised: correlating OSCE performance scores and knowledge grades

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Background: In 2011/2012 our Year-3 medical students could take peer-taught student selected component (SSC) on internal medicine clinical skills training, assessed by objective structured clinical examination (OSCE). Due to different testing domains, OSCE performance was not supposed to correlate with knowledge grades. We decided to determine whether this holds in our situation. Research question: Is there correlation between OSCE scores, students' average grade and students' final internal medicine grade in 2011/2012?
Summary of work: We delivered a non-anonymous questionnaire (piloted a year before) via emails; email, SMS and Facebook reminders were used. Disclosure on protection of individual response confidentiality was included. Students gave consent for using their OSCE results. The collected quantitative data was analysed in SPSS.
Summary of results: The overall response rate was 90% in a sample size of 40. Students' mean average grade was 8.7 (SD=0.33), mean internal medicine grade was 8.0 (SD=0.15) and mean perception of deserved internal medicine grade was 8.4 (SD=0.13). Average grade was positively correlated with practical procedures points on OSCE by having Pearson correlation coefficient of +0.47 (p=0.006). When analysing data set split by gender, the significant correlation remained only for females. Interestingly, OSCE overall points have been found to negatively correlate with OSCE overall time: -0.64 (p<0.01).
Conclusions: We found correlation between OSCE subscale of practical procedures scores and female students' average grade.
Take-home messages: Average grades might be positive predictors of practical procedure OSCE performance in females.

7BB/5

A new look at OSCE as an educational method (OSCEd): Interns' CPR competency

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Background: According to the AHA guideline, the physician as manager of CPR teams needs effective theoretical and practical education that must be updated every 6 months and 2 years, respectively. CPR training is an inseparable part of general medical curricula; although the look out through CPR is nonspecific and unplanned. In regard to CPR, focusing on training is essential. Competency, located near the top of Miller's pyramid, can be assessed by methods such as OSCE. In this study, OSCE was used as pre-post Examination and also as an Educational intervention (OSCEd).

Summary of work: In this experimental pre-post test design study, the intervention, Objective Structured Clinical Education (OSCEd), consisted of a booklet and station training, including 8 stations. In each, students spend 20 minutes. Pre-and post-test interval took 3 months. Manpower training, equipment preparation, designing stations, writing expected scenarios, programmable mannequins, trainers, and checklists were prepared. Paired t-test was used for comparing pre- post results through SPSS v.16.

Summary of results: Pre, post-test mean of knowledge and skill were 7.14±2.38, 7.38±2.29 and 17.34±1.38, 14.63±2.37 (from 20, p<0.05), respectively.

Conclusions: This study indicated that, OSCEd as an Educational Method was effective although the mean score of skill in post test was relatively low (14.63±2.37).

Take-home messages: OSCE is an effective method of education (OSCEd) in CPR training.

7BB/6
The effectiveness of video-assisted assessment for Objective Structured Clinical Examination

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Background: The Objective Structured Clinical Examination (OSCE) is an important tool in assessing clinical skills of medical students, particularly in the surgical department. Several factors, however, affect the reliability of this tool, including the raters. We wish to evaluate whether a video-assisted OSCE assessment is as effective as a real-time rater.

Summary of work: A 5-minute OSCE station of history taking of breast mass for 43 fourth-year medical students, rotated at the department of surgery, was evaluated by the real-time rater. The video-records were carried out during this examination. All records were evaluated by the same rater. Mean total scores from the two methods were compared.

Summary of results: There was no difference in mean total scores between the real-time rater and video-assisted assessment (76.67 vs. 76.98, p = 0.25). A strong correlation (r = 0.975) between the two groups was demonstrated.

Conclusions: The video-assisted OSCE assessment is effective and reliable. Using this method while human resources are limited is helpful.

Take-home messages: The video-assisted OSCE assessment is as effective as the real-time rater.

7BB/7
Saudi Internal Medicine Residents' Perceptions of the Objective Structured Clinical Examination as a Formative Assessment Tool

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Background: Saudi Commission for Health Specialties first implemented Objective Structured Clinical Examination (OSCE) as part of the final year internal medicine clerkship exam during the 2007-2008 academic year. This study evaluated Internal Medicine residents' overall perceptions of the OSCE as a formative assessment tool. It focused on residents' perceptions of the OSCE stations' attributes, determined the acceptability of the process and provides feedback to enhance further development of the assessment tool. The main objective was to assess Internal Medicine resident test-takers' perceptions and acceptance of the OSCE, and to identify its strengths and weaknesses through their feedback.

Summary of work: A cross-sectional survey of a group of Internal Medicine residents who participated in the OSCE course on November 8th 2012 was conducted using a self administered questionnaire with various domains, modified from a study by Pierre et al in 2004 and administered immediately after all residents completed the OSCE stations.

Summary of results: Overall, residents' evaluation of OSCE was favorable with respect to the comprehensiveness (79-86%), transparency (83%), fairness (95%), and authenticity of the required task (89%). However, the majority (87%) appreciated the supportive attitude and constructive feedback given by the examiners. But few felt that the time given for feedback was inadequate (22-36%) and expressed their concerns about the ambiguity of some station instructions and the high fee of the course.

Conclusions: Overall, residents' evaluation of OSCE was favorable and encouraging.

Take-home messages: To this end, we recommend that formative assessment opportunities using OSCE for providing feedback to students should be included in the curriculum, and continuing refinement and localized adaptation of OSCEs in use should be pursued by course directors and assessment personnel.

7BB/8
Changing clinical teaching improves performance of interns in pediatric OSCE

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Background: In our medical center, all medical interns receive a 6-week pediatric training course, which includes a program of core lectures and 3 different sub-specialties of clinical practice. A pediatric OSCE test of 2 clinical cases is given to all interns at the end of their course. Our previous report showed that OSCE performance is not affected by sub-specialist training. However, the scores of neonatal physical examination are lower in interns without newborn center training experience. Therefore, we designed a brief training course of neonatal physical examination for all interns. The purpose of this study is to evaluate the results of this brief training course.
Summary of work: The brief training course began in April 2012. The OSCE data were collected between November 2011 and January 2013. We evaluated the scores of the neonatal jaundice test in pediatric OSCE. A total number of 135 interns participated in the OSCE test. They were divided into 4 groups according to whether or not they received the sub-specialty training course and brief training course. A t-test is used to compare the scores of these interns.
Summary of results: After taking the brief physical examination training course, there is no statistically significant difference between the scores of the groups either with or without newborn center training experience. The scores of interns without sub-specialty training are improved after taking the brief training course (60.57±10.72 vs 69.21±16.35).
Conclusions: We show that by designing a brief training course we are able to improve the clinical skills of

medical interns, evidenced by their performance in OSCE tests.
Take-home messages: Our pediatric OSCE for medical interns is designed for the purpose of teaching. Therefore, it is useful to discover problems in our training course. This study proves that tailoring our teaching courses according to the results of OSCE is able to improve the clinical skills of interns.

7BB/9
The Pediatric OSCE Collaboration of Canada (POCC)

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H Writer (University of Ottawa, Pediatrics, Ottawa, Canada)
S Lawrence (University of Ottawa, Pediatrics, Ottawa, Canada)
A Jeffries (University of Toronto, Pediatrics, Toronto, Canada)
CPPD Canadian Pediatric Program Directors of Canada (CPPD) (McMaster University, Pediatrics, Hamilton, Canada)
*(Presenter: **Sarah Manos**, Dalhousie University, Pediatrics, Halifax, Canada)*

Background: The Royal College of Physician and Surgeons of Canada requires residents to pass a comprehensive examination at the end of their training, which includes an OSCE. All 17 pediatric training programs in Canada have implemented a practice OSCE, commonly occurring biannually, which provides the learner with formative feedback. Implementation is, resource intensive, requiring question bank development and maintenance, faculty development, and extensive human and physical resources. Many programs lack the infrastructure and manpower to run a comprehensive and meaningful OSCE for their learners.
Summary of work: With the objectives of distributing resources and improving standardization, in 2009 three programs in Ontario began collaborating on OSCE administration. Station development responsibilities were spread across programs, reducing individual centre resource strain, and allowing for the administration of a more standardized exam at each centre. A national OSCE was the logical expansion, with the creation in 2012 of the Pediatric OSCE Collaboration of Canada (POCC). All 17 residency programs now participate in this nationwide standardized process. Responsibilities for OSCE blueprint development, station development and review; language translation and data collection and distribution are spread nationwide. Collaboration is key to the success. Data for individual stations and resident peer group performance is distributed nationally, allowing each program to benchmark resident performance against a national cohort, and to identify strengths and weaknesses with regard to specific content.

Summary of results: POCC has successfully implemented a national standardized formative OSCE and highlights an effective collaboration of the Canadian Pediatric Program Directors. Residents can now receive feedback compared with their peer group nationwide. Task distribution across programs has decreased individual program resource challenges, and organization and standardization have improved.

7BB/10
Faculty Development on OSCE for Internal Medicine Clerkship

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Background: Undergraduate internship comprises only a structured global assessment as a method of clinical competence evaluation.
Summary of work: Weekly meetings were held during seven months and participants discussed about the OSCE, as well as the development of blueprint and the building of test stations. By means of Survey Monkey, two surveys were performed prior to implementation of OSCE in our institution. They aimed to check how students and teachers view the clinical competence evaluation and the current institutional assessment model.
Summary of results: Students have been submitted to badly elaborated tests which were viewed as non-formative. Teachers think that assessments prepare students better and that clinical competence evaluation is essential. Teachers view the clinical competence evaluation as an assessment of skills and performance. OSCE performance assessment was implemented giving students feedback with five stations and then re-implemented with ten stations including 16 teachers (11 evaluators, two observers, two actors and a coordinator) and 19 students (ten actors and nine evaluators). Each station lasted ten minutes, eight of which devoted to evaluation and two to student feedback. A new Survey-monkey survey was held after the OSCE. Only knowledgeable to 22.2% of the students, the OSCE with feedback reached their expectations and they all agree that this new method of clinical competence evaluation needs to be implemented in their medical course.
Conclusions: The OSCE with feedback is an important tool in clinical competence evaluation and is able to motivate teachers and students alike. Faculty felt motivated on working with performance assessment and planned to include it as part of the faculty development program.
Take-home messages: All steps of development and implementation of the OSCE provided both to faculty and students the opportunity to reflect about the learning process, the evaluation and the overall structure of their medical course.

7BB/11
Students' Perceptions About Objective Structured Clinical Examination In Dentistry, University Of Concepcion, Chile

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Background: The Objective Structured Clinical Examination (OSCE) has widely shown its advantages on measuring skills in health professions students. This paper presents the students' perceptions about the first OSCE experience at the Dental School, University of Concepción-Chile at the clinical level.
Summary of work: Objective: To characterize the undergraduate students' perceptions about the implementation of an OSCE in the Clinic of Prosthodontics in the final year of the curriculum. Methods: A descriptive study. 66 students participated in this OSCE. Review was collected electronically using a Likert survey.
Summary of results: Students appreciated the implementation of the OSCE in the subject´s assessment process in the fields of objectivity, self-evaluation, autolearning, and coherence with the learning objectives of the course. The time allocated to some stations must be modified. The perceived difficulty of OSCE and anxiety produced by participating in it are similar to any other assessment. The students think it should be used to assess their clinical performance skills in other disciplines.
Conclusions: OSCE was successfully implemented in a clinical subject for the first time. This exam should be used widely at the clinic because of its advantages.

7BB/12
Can 3rd year Medical Students write a 4th year OSCE? Making a summative exam formative

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Background: University of Alberta medical students sit a summative OSCE at the end of their 4 year program to assess competency to advance. This leaves little opportunity to remediate learners who fail. We hypothesized that administering this exam at the end of 3rd year would allow failed students (FS) to remediate areas of deficiency during their final year of medical school.
Summary of work: The entire academic record of each FS (including clinical, written exam and OSCE performance) was reviewed by 1 of 3 senior Faculty

education experts, who then prepared an individualized remediation plan in the form of outcome objectives. FS re-challenged the exam after 7 months of remediation informed by this plan.

Summary of results: 25/151 (16.6%) students failed the OSCE when administered at the end of 3rd year compared to 12/143 (8.4%) students from the previous year when the OSCE was administered at the end of 4th year. 22/25 (88%) FS passed the retake after 7 months with remediation compared to 10/12 (83.3%) previous year's FS after 4 weeks without remediation. 20/22 (90.9%) FS agreed they had enough time for remediation, 13/22 (59.0%) preferred the OSCE at the end of 3rd year and 12/22 (54.5%) students agreed the OSCE helped identify areas of weakness.

Conclusions: It is feasible for 3rd year students to write a 4th year OSCE. Although initial fail rates were higher, retake fail rates were not. Administering this exam earlier allowed more opportunity to remediate the learner in difficulty.

Take-home messages: Remediation should be offered to the learner in difficulty.

7BB/13
An empirical method of setting OSCE pass-scores with small numbers of candidates

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Background: The OSCE is a commonly used objective measure of clinical competency. When OSCEs are part of an evaluation process, determining valid pass-scores is critical

Summary of work: Several methods of standard setting have been applied to OSCEs. Although the Borderline Regression method is becoming the method of choice, results are inconclusive. This method relies on several key assumptions which if not met, lead to spurious results. Often when conducting OSCEs, the groups of candidates are small thereby causing concern about satisfying the underlying assumptions. Fitting a resistant-line is a non-parametric method of curve fitting that can be used to set pass-scores with minimal regard for model assumptions. This study compares pass-scores based on smoothed resistant-lines to those set by the borderline regression method. An eight-station OSCE was administered to the 28 fourth year medical students at the University of Alberta. Pass-scores were determined for each station using both methods.

Summary of results: Different approaches to standard setting result in differing pass-scores. When the regression assumptions are satisfied, pass-scores are similar. When the data have outliers or long tails pass-scores are less similar suggesting that those determined by the resistant-line method may be more valid.

Conclusions: The use of resistant-lines to determine OSCE pass scores has promise but requires further investigation. Subsequent research involving this

method needs to look at the effect of smoothing the resistant line, examining the effect of extrapolation and developing computer based applications to perform the necessary calculations efficiently

Take-home messages: Further study is required to determine more robust methods of setting pass-scores with small groups.

7BB/14
Peer Organised OSCE – Useful Revision Opportunity for Undergraduates?

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Background: Due to changes in the curriculum, undergraduate students in their penultimate year will sit one summative Objective Structured Clinical Examination (OSCE) at the end of the academic year (instead of sitting 3 modular OSCEs). A peer organised mock OSCE for the Child and Family Health with Dermatology (CFHD) Module was devised, and participants' feedback evaluated.

Summary of work: Sixteen stations were designed by medical students and approved by a senior clinician. Candidates sat the mock exam either individually or in pairs. Doctors or medical students assessed the candidates, based on a marking scheme. Each station was 5 minutes long and was followed by 2 minutes of constructive verbal feedback. All candidates completed feedback sheets rating the quality of individual station feedback and overall components of the mock exam from a scale of 1–5 (1–Poor to 5–Excellent).

Summary of results: 127 students attended and rated 88.3% of individual station feedback as either Excellent (45.7%) or Good (42.6%). Overall the Mock OSCE received either Excellent or Good by 95.3% of participants for content, 92.9% for variety of stations, 93.7% for organisation, 87.4% for similarity to formal exam setting and 95.3% for usefulness. Qualitative feedback from participants highlighted the perceived demand for more OSCE practice.

Conclusions: The mock CFHD OSCE was found to be an extremely valuable learning experience for the participating students.

Take-home messages: Peer organised OSCEs can be useful for revision purposes.

7BB/15
An Evaluation of Objective Structured Clinical Examination (OSCE) scores in 6th year medical students

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Background: Our Objective Structured Clinical Examination (OSCE) consists of 5 sections (History taking, physical examination, laboratory interpretation, procedure competency, and communication skills). We aimed to evaluate OSCE scores and pass rates on 5 sections in 6th year medical students.
Summary of work: OSCE scores of 433 sixth-year medical students at the end of training in Obstetrics and Gynecology department between 2010 and 2012 were analysed. The minimum passing scores were determined for each station by experienced obstetrics and gynecologic staff.
Summary of results: The mean OSCE scores in history taking, physical examination, laboratory interpretation, procedure competency, and communication skills were 66.8%, 71.7%, 57.7%, 71.7% and 56.7%, respectively. The passing rates were 71.5%, 78.4%, 53.2%, 74.1% and 46.2%, respectively.
Conclusions: Communication skills and laboratory interpretation had low passing rates.
Take-home messages: We recommend that 6th year medical students should be provided with more learning experiences in communication skills and laboratory interpretation.

7BB/16
The Association between the Objective Structured Clinical Examination (OSCE) scores on Amniotomy and the Experiences from Clinical Practice

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Background: Amniotomy is an essential skill for medical students. Clinical competency in amniotomy is evaluated using the Objective Structured Clinical Examination (OSCE); this test is administered after medical students have had an opportunity to practice on models and on patients under supervision. We aim to assess the correlation between the scores on the OSCE and experiences from clinical practice.
Summary of work: The study was conducted on 5th year medical students during training in the Obstetrics and Gynecology Department, 2010. The demographic data and grades of Obstetrics and Gynecology students were

obtained. The OSCE scores on amniotomy were evaluated at the end of training. Clinical experience was evaluated by log books recording the number of procedures performed successfully. The OSCE scores were classified using the cut-point of median at 73. Chi-square and Fisher's exact test were used for analysis and a $P < 0.05$ was considered significant.
Summary of results: A total of 135 medical students were evaluated. Ninety-eight students (72.6%) performed 1-2 procedures, 8 students (6%) performed 3-4 procedures and 29 students (21.4%) did not perform a procedure. Student grades on the paper-based test and overall clinical competency were the factors associated with high OSCE scores, $P = 0.014$ and 0.036. However, the number of procedures performed did not correlate to the OSCE score (P 0.089).
Conclusions: OSCE scores on amniotomy correlate with student grades in Obstetrics and Gynecology, however, these scores are not related to the number of procedures performed.
Take-home messages: Clinical experience may not correlate with student OSCE scores.

7BB/17
OSCE examiners and their scoring behaviors: An observation

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Background: In performance-based assessments such as the objective structured clinical exams (OSCEs) examiners remain a significant source of variance. In this study, we report the scoring pattern of OSCE examiners in the second year of the undergraduate MBBS program.
Summary of work: The examination consisted of 8 stations, involving up to 24 examiners. All examiners attended a pre-examination station specific briefing and standardization process including a discussion of the scoring sheet. The examiners' mean scores, station mean scores, standard deviation and pass scores for each station were determined.
Summary of results: The station mean scores varied from 13.89 to 17.25 out of a maximum possible score of 20. The SD range was 1.96 to 3.01 and pass scores were from 11.85 to 13.17. The percentage of examiners whose mean scores were within 1 SD of the station mean score ranged from 75% to 100%.
Conclusions: The results are preliminary and suggest that variation in examiner scoring behavior exists and

reasons for this could include the hawk and dove phenomenon, station difficulties and the station objectives. Further analyses of the data are required to deal with some of the confounding factors. This will inform on the design of appropriate interventions to improve standardization among OSCE examiners.

Take-home messages: As the OSCEs depend heavily on individual raters, consideration might be given to finding useful, defensible, and legitimate statistical means to detect and reduce or minimize such variance.

7CC Posters: Standardized Patients / Virtual Patients
Location: South Hall, PCC

7CC/1
Development of Standardized Patients for learning how to communicate with patients

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Background: Standardized Patients (SPs) are used as one of the educational tools for learning clinical skills for medical students. If students learn better in clinical training session with SPs, they will be able to work with real patients more confidently and more skilfully.
Summary of work: The study comprises two components: a developmental project and a descriptive research component. The first objective of the study was to train and use a number of SPs for the communication skills training in history taking sessions (in the Respiratory Block)for second year medical students (MD program), School of Medical Sciences. Chronic cough script developed and after validation and translation used for training the potential SPs, which they then used/applied when teaching communication skills".
Summary of results: The results showed that all 155(100%) students were satisfied with the overall teaching and learning sessions with the SPs, as well as the different aspects of history taking and SPs' performance.
Conclusions: The results of the study indicated a potential use of SPs as a valuable tool in teaching and learning effective communication skills in undergraduate medical education.
Take-home messages: Our attempt was also to explore the roles of SPs and teachers in providing feedback on students' performance in the history taking session, the findings however are not included in the study.

7CC/2
Empathy, clue hunters and exam blindness. Inclusion of a photograph in an undergraduate OSCE

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Background: King's College London medical undergraduate final Objective Structured Clinical Examination (OSCE) includes two prescription writing stations. The 2012 OSCE included a simulated patient photograph. Simulated patient materials can promote student empathy (Deladisma, 2007), however it is unclear if this alters performance during assessment (Hojat, 2002). We evaluated the effect on exam performance of including a photograph and explored students' views on its inclusion.
Summary of work: Scores for 2012 prescription writing stations were compared against 2011 scores. Cohort differences (2011 cf 2012) were controlled for by analysing a separate non-prescription "control" station which was the same for both groups. Results were analysed using t-tests & ANOVA. Immediately following their OSCE students self-completed an anonymised questionnaire. Responses were analysed using thematic analysis.
Summary of results: The study included 224 students, 181 (81%) completed the questionnaire. No difference in control station scores. No difference in prescription writing station scores 2011 vs. 2012. Student views divided into 4 groups: positive, neutral, negative & those not 'seeing' the photograph. 55 students (31%) thought the photograph increased realism and improved their prescribing. 74 (43%) felt unaffected by the photograph, commonly remarking on insufficient time to consider it. 20 (12%) found the photograph distracting and were unsure whether missing diagnostic 'clues'. 25 (14%) did not see the photograph. There were no gender differences.
Conclusions: Inclusion of a photograph did not affect student scores. Student views on the photograph were mixed. Students may not process all information available.
Take-home messages: Simulated patient materials can promote empathy but did not objectively affect performance.

7CC/3
OSCE assessment of student inter-personal and communication skills by simulated patients compared with clinical tutors – Is there a correlation?

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Background: Incorporation of standardised patient (SP) ratings of student performance is a useful approach to the assessment of student inter-personal skills and professionalism. This study aims to determine the correlation between SP and clinical tutor ratings of final year medical student performance in a communication skills OSCE.

Summary of work: Students' inter-personal skills and professionalism were assessed in a 2-station OSCE, which was a component of the Final Professional OSCE Examination. Students (n=215) were independently graded on their performance by a clinical tutor and an SP. Using a 5-point scale, judgments ranged from 'clear fail' to 'excellent.'

Summary of results: Students' overall (global) grades for the 2 stations were analysed and the relationship between clinical tutor and SP scores was determined. The correlation coefficient (rs) for station 1 and station 2 was 0.71 and 0.69 respectively, indicating a strong positive relationship between the 2 types of examiners at each station.. Further analysis showed that by combining the 2 station scores, both examiners were in full agreement for 49% of students. There was a one-point difference for 43%, 2-point difference for 7.7% and in the case of only one student, there was a 3-point divergence in scoring (0.2%).

Conclusions: The results of this 2-station OSCE indicate a high level of agreement between SPs and clinical tutor examiners. Using a 5-point scale, 92% of the grades were either equal or within a 1-point difference.

Take-home messages: These results suggest that there may be a role for incorporating SP ratings in an OSCE assessment of inter-personal and communication skills. This approach will re-enforce the perceived importance of these skills to all stakeholders.

7CC/4
Effect of emotionally-complex roles on standardized patients

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Background: Standardized patients (SPs) have participated successfully in nursing and medical education. SPs portraying stressful situations may have psychological or physiological effects after their performance; however long-term effects have not been well documented in the literature. Objective: to explore the impact of interpreting roles related to HIV among SPs.

Summary of work: Qualitative descriptive approach. Questionnaires with open ended questions were conducted immediately after the interpretation of HIV related roles and a year later by 10 SPs, who performed his/her role 12 to 24 times in an OSCE. In addition, a focus group was run a year later using a pre-established interview guide.

Summary of results: Two major themes emerged based on content analysis: a) Effects of the interpretation: physical (weariness, headache, nausea), emotional (sadness, anguish, fear, vulnerability), and behavioral (talk with their partners and friends, use prophylactic methods, take an HIV test), and b) Complexity of the roles: previous experience as SPs in OSCEs, nature of the role, preparation, training and debriefing.

Conclusions: The findings stress that interpreting an HIV related role produces emotional, behavioural and physical effects in SPs, at any stage during the training or performance, and has a long-term impact on their perception of his/her personal health and risk.

Take-home messages: a) To interpret complex roles can produce emotional, physical and behavioral effects in SPs; b) To portray stressful roles may have short and long-term impact on SPs; c) Selection, preparation, training and debriefing are issues to consider for reducing negative effects on SPs.

7CC/5
The use of standardized patients in training Advance Trauma Life Support (ATLS)

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Background: In the ATLS course health professionals are trained in the skills and abilities required for the management of acute situations in multiple trauma patients. Standardized patients interventions are widely used in medical educations as a common instructor and assessment tool enables the representation of different developmental stages of an illness, complications and side effects.

Summary of work: The course was aimed at health professionals involved in emergency medicine. Six simulation rooms were available with standardized patient and diverse medical and surgical equipment: pneumothorax, cardiac tamponade, 2nd degree burn, fractured pelvis, patient transfer and penetrating wound. Standardized patient is the centre of scenarios designed to support learning in procedural skills, provides safe and effective practice of diagnosis and treatment algorithms as well as of communication and teamwork skills, before these situations are met in daily practice.

Summary of results: Most students found that standardized patients were instructive and helpful to make the simulated trauma scenarios real. They are a valid, reliable, acceptable and feasible method to teach the skills necessary for the training. Students evaluate the interaction with standardized patients for teaching favorably.

Conclusions: The standardized patients facilitates the recognition of acute trauma, the learning of their

management, prompting the decision, making diagnostic and therapeutic decisions of the team in a realistic environment, detection of training deficiencies and promote the integration of complex clinical knowledge and skills in the most common scenarios of the critically patients.
Take-home messages: Standardized patient is a well-established tool for training personal health in emergency medicine.

7CC/6
E-Learning: Comparing the Effectiveness of Virtual Patients and Lectures as Pedagogies for Medical Students

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Background: Virtual patients are simulated clinical scenarios that are increasingly integrated into medical curriculums to enhance traditional teaching practices. This study aims to establish if virtual patients can lead to better knowledge acquisition and problem-solving skills when compared to lectures or whether the two techniques are complementary.
Summary of work: Approximately 100 third year medical students will be randomly assigned to two groups. Group A will attend a lecture and group B will complete a virtual patient both on the topic of acute kidney injury. Both groups will subsequently complete a MCQ examination. Students will also complete a questionnaire relating to the perceived usefulness and feasibility of the e-learning module compared to the lecture.
Summary of results: Our pilot study revealed that students who completed the virtual patient achieved higher scores (81%) on a topic specific MCQ examination compared to the lecture group (61%). 88% of students felt the VP was set at an appropriate level. The majority of participants (94%) believed VPs should not replace physical patient encounters and would be willing to undertake the modules independently (63%). A larger scale study is currently in progress and will be completed in April 2013.

Conclusions: Virtual patients are an effective adjunct to lectures and they help develop a student problem solving and decision making skills.
Take-home messages: This study shows that students value VPs as a self-directed learning resource and will utilise its benefits to complement learning.

7CC/7
Virtual Patients: 'This way' for evidence based, accessible, open-access resources

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Background: Virtual patients (VPs) are online representations of realistic clinical cases. Widely used, there is limited evidence as to how they should best be designed. Significant resources are required to develop VPs. The recent Medbiquitous international technical inter-operability VP standard supports sharing, re-purposing, and collaboration.
Summary of work: We studied 16 VPs in four core musculoskeletal topics in a multi-centre randomised factorial study of year three and four medical undergraduates. We evaluated the impact of two design properties: branching and clinical reasoning instruction. The VPs were developed to the Medbiquitous standard, using a Creative Commons licensing strategy for content development. Outcomes included scores from decisions and a published self-reported VP evaluation (EViP). This research was funded by an education research grant 19330 from Arthritis Research UK.
Summary of results: We invited 718 students from three UK Schools, 591 (82.5%) consented to participate. They completed 1778 VPs and 1229 evaluations (69.1%). They spent 28.6 minutes (SD 13.7) per VP, scoring 8.5/15 per VP (SD 2.1). The cases were positively evaluated (44.5/55, SD 5.44). We found: (1) a number of significant differences supporting individual design properties; (2) correlations between VP scores and summative assessment data (r=0.3-0.5).
Conclusions: This large VP research study is the first to our knowledge to publish the VPs and student performance metrics as open-access resources to support the research dissemination. We call for open publication of research cases to promote scrutiny, transparency, uptake, and VP development.
Take-home messages: We have evidence to support individual VP design properties. The VPs used are

accessible via our study website
www.go.warwick.ac.uk/virtualpatients.

7CC/8
Virtual Patients in the form of a Medical Application for smartphones and tablet devices

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Background: Since the 1970s on-screen simulations of clinical scenarios have been created and subsequently used in education. However, it is only in recent years that virtual patients have begun to form an integral part of mainstream healthcare education due to the advancement in technology resulting in lower cost and ease of construction
Summary of work: Two 4th year medical students developed and evaluated a medical application for use on iphones and tablet devices as a part of a 5-week student selected component. The topic of microbiology/infectious disease was chosen since this is an area that students find challenging. Following a literature review, 9 cases were written which, following input from topic experts were transferred into a virtual patient medical application. Medical students from years 3, 4 and 5 were then invited to use the application. Pre and post-questionnaire data was collected.
Summary of results: A total of 60 students tested and evaluated the application. Analysis of the results showed that both students and staff found that the application: (1) was an effective and enjoyable way to learn; (2) had increased confidence and knowledge; (3) would use it again and would recommend it to a friend.
Conclusions: The development and implementation of a medical application using virtual patients was a useful learning resource.
Take-home messages: This study makes a valuable contribution to the limited literature which is available to provide evidence in support of the use of this technology.

7CC/9
Establishment of a Supra-Regional Network of National Centres in Medical Education, focussed on PBL and Virtual Patients (ePBLnet)

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ePBLnet Consortium (Aristotle University of Thessaloniki, St George's, University of Nicosia, Karaganda; Astana; David Tvildiani; Zaporozhia Medical Universities; Sumy and Kutaisi State Universities)

Background: In 2012, a consortium of 9 institutions, 3 from EC countries and 6 from participant countries in Eastern Europe, received EC Tempus Funding for the creation of national medical education centres (MECs) in Georgia, Ukraine and Kazakhstan. Their initial task was to modernise the teacher classroom-oriented biomedical science component of the medicine course in the 6 Eastern European universities, to a more student-motivating, competency-based learning styles more relevant to clinical practice. The second task was to link with other medical education modernisation networks and use this ePBLnet 'string of pearls' network to generate the critical mass of academics/institutions needed for sustainable development in medical education across several regions.
Summary of work: It is the task of MECs to produce generalisable curriculum development plans for each of the partner institutions, taking advantage of the similarity of their post -Soviet curricula. The curricula are being restructured with a focus on competence-based learning and assessment systems built around Problem-Based Learning and Virtual Patients.
Summary of results: The network MECs have been set up and agreed a generalised curriculum. Partners are now focussed on developing the individual PBL curricula. During this period the consortium will begin to widen the network to include other education networks.
Conclusions: A consortium approach is successful in this instance because of the great similarities in the Eastern European medical education structures in general, and in particular post-Soviet countries.
Take-home messages: For those with similar interests the ePBLnet should offer a sustainable network for continuing engagement.

7CC/10
Raising an e-baby facilitates medical students learning in child growth, development, and preventive care in Pediatrics

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Background: Learning children's growth and development and providing preventive health care consultation are the core competencies of pediatricians. However, it is not easy for medical students to remember children's developmental milestone and schedule of vaccination during pediatric rotation. We hypothesized that if we could provide medical students a simulated system to raise a virtual child, we might facilitate their learning of growth, development, and preventive care in Pediatrics.

Summary of work: We used the National Child Health Care Handbook as the reference and translated the context, clinical problems into photos, voices, motion pictures, and/or video by using a simulated e-Case-based Learning (e-CBL) strategy. Medical students were invited to adopt a virtual child in the e-learning system the first day and providing child health care during their 6-week rotation in Pediatrics. They took a written exam at the end of rotation.

Summary of results: A group of 61 students received the traditional lecture mode and were used as the control group; another group of 50 students adopted a virtual child and were used as the experimental group. In the final examination, students in the experimental group had a higher ratio of correct answers (72.0 % vs. 63.3%) in questions related to vaccination (74.4% vs. 53.0%, p <0.05), growth and development (55.5% vs. 35.5%, p <0.05).

Conclusions: Raising a virtual child can facilitate medical students' learning of child growth development and preventive care in Pediatrics.

Take-home messages: Raising a virtual child can facilitate medical students learning in child growth, development and preventive care in a 6-week rotation of Pediatrics.

7CC/11
Virtual Patients in Primary Care: Development of a Reusable Model that Fosters Reflective Practice and Clinical Reasoning

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Background: Virtual patients (VPs) may support learning processes and be a valuable complement in teaching communication skills, patient-centredness, clinical reasoning and reflective thinking. Studies in designing VPs in primary care education are rare. The objective was to create a VP-model that facilitates medical students' reflective practice and clinical reasoning. The main research question was how to design a VP-model with embedded process skills for primary care education

Summary of work: OpenTUSK virtual patient system was used as an authoring tool. The VP-model was validated and further developed in a Delphi process by a group of primary care teachers. Focus group interviews with 14 students were performed after testing the model, and analysed using content analysis.

Summary of results: A patient-centred model of consultation in alignment with the Calgary-Cambridge Guides was used. Iterated learning loops, based on Kolb's learning cycle, including a didactic inventory, a concrete experience and pre-formulated feedback, constituted the VP-model. The students were asked to expose their clinical reasoning and reflections in-action in every learning loop. The students experienced that the structure of the model was interactive and easy to follow. The content of the VP case was regarded as authentic and the immediate feedback was appreciated. The VP was regarded as an intermediate learning activity between theory and practice. The students also reported that the VP case supported their self-directed learning and reflective ability.

Conclusions: The VP-model for primary care education constitutes a valuable supplement in consultation training and clinical reasoning, and may support self-directed learning and reflective thinking.

Take-home messages: VPs may support students' learning in primary care.

7CC/12
'Real' structure, power and agency in simulated diagnosis, prognosis and emergency care

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Background: Prehospital emergency care contexts are fraught with inherent patient and practitioner risk. Whilst patient factors may be unavoidable, practitioner medico-legal risk is mitigated by a differential diagnosis, contextualised by their prognosis and the monitoring and evaluation of the relevant clinical interventions. The aim is to critique patient simulations and to recommend conceptual and structural enhancements to simulated practice in the interest of emergency care practitioner agency.

Summary of work: Almost 100 emergency care students and graduates were observed whilst voluntarily performing individual simulations. An educational intervention was provided after which the participants repeated the simulation. Diagnostic, prognostic and clinical interventions are compared before and after simulations using descriptive statistics and thematic analysis.

Summary of results: 'Patient-centredness' has value in diagnostic assessment but interventions in the simulated context requires a 'practitioner-centred' orientation. The structure of the simulation provides for

the diagnostic, prognostic and intervention. The power dynamic emerges in the known and unknown context, knowledge and scope. Agency is measured by the state of coherence of patient assessment, prioritisation and interventions provided.

Conclusions: Impediments to efficacious simulated (and by application, clinical) practice include fragmentation and deficiency of knowledge and experience, misaligned ontological assumptions and paedagogic misconceptions. Simulations should focus on the learner/practitioner as the lead actor whose actions are predicated upon knowledge, motives and beliefs, all of which can be problematized and influenced by the simulation.

Take-home messages: The reflexivity dynamic (in the form of reciprocal determinism) and diagnostic reasoning inherent in emergency care simulations enables agency building or limits there-to, particularly if the simulation is validly 'structured' and reliably 'powered'.

7CC/13
The role of virtual reality simulation in surgical training

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Background: Surgical training within the United Kingdom has traditionally been one of apprenticeship. External pressures within the United Kingdom have necessitated changes in surgical training with virtual reality simulation being employed as a supplementary method of training.

Summary of work: Review and critical appraisal of published literature from searches on MEDLINE, EMBASE and the Cochrane Library from January 1999 to December 2012 evaluating the potential benefits of virtual reality simulation training compared to traditional teaching methods and identifying ways in which virtual reality simulation can be incorporated into the surgical curriculum.

Summary of results: Alternative techniques are being explored such as video-box training and virtual reality simulation. Within published literature four main outcomes have evaluated the effectiveness of virtual reality simulation compared to traditional training (1) reduced time taken to complete the task, (2) reduced error score, (3) increased accuracy of performance and (4) increased economy of movement.

Conclusions: This review has demonstrated the beneficial effects of supplementing standard laparoscopic apprenticeship training by simulation techniques and provides clear principles for the introduction of simulation into the surgical curriculum. This review has major implications for clinical practice by demonstrating the beneficial effects of supplementing standard laparoscopic apprenticeship training by simulation techniques. Ultimately the adoption of surgical simulation within a structured curriculum will lead to recognition of the potential of surgical skills simulators in the modern era.

Take-home messages: Virtual reality training has been demonstrated to be beneficial in supplementing standard laparoscopic surgical training of apprenticeship.

7CC/14
Web-based virtual simulation of prescription order: Development and evaluation

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Background: Development of skills related to reading and interpretation of prescription order is an important topic in introductory pharmacy practice. However, a wide range of handwritten-prescription orders along with limitation in practice time and faculty resources affect the outcomes of practice. In this study, a web-based software for virtual simulation of handwritten-prescription orders was developed, and effectiveness of its implementation was assessed.

Summary of work: After developing the database and necessary tutorials and indexes, a collection of handwritten-medication orders was uploaded to the website. Based on readability, prescription orders were classified into 3 levels, subsequently, essential drug information of each item in the prescription was added to software. After implementation of program, user satisfaction and effectiveness were assessed by a questionnaire survey.

Summary of results: Students agreed that using the website increased their motivation to learn. Respondents state that the website generally improved their applied knowledge in the fields of drug interactions monitoring, practical aspects of dosage forms, drug safety assessment during pregnancy and lactation and identifying common brand names. Furthermore, the students' perception in efficiency of the website was positive, and they believe that their skills in reading and interpretation of prescription order were improved. A large number of students state that the capability of promptly checking the correctness of each answer is the major advantage of the program. Despite all positive comments, students still insist that the website cannot be a substitute for a practice in pharmacy set-up and they were not very confident that their consultation skills are improved.

Conclusions: Prescription reading software was viewed favorably by pharmacy students. Therefore, this simulation software could be implemented into the pharmacy education program.

7CC/15

A mixed methods observational simulation-based study of interprofessional team communication

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Background: Interprofessional team communication plays a pivotal role in patient safety. However, in-depth insight into the complexity of team communication is limited. Mixed methods video-observational studies might fill a gap in terms of understanding the meaning of communication interactions and link team performance to outcome. The aims were to develop a theory-based instrument that measures team communication and to investigate the quality of summaries evolving step wise and progressively through scenarios.

Summary of work: The study used mixed methods. Team communications were video-observed in 29 simulation scenarios. Data analysis employed grounded theory. Communication events and failures were recorded and classified into four categories. Data also supported the building of the SkejSim Team Step Model that captures and conceptualizes the quality of summaries.

Summary of results: 1091 communication events and 58 communication failures were recorded and classified. Failure types included occasion, content, purpose and audience. Two thirds of these failures resulted in visible effects. Teams were found to differ which could be explained using the five-level model. In particular, verbal updates were found crucial for mutual team interactions when critical situations unfolded.

Conclusions: The study found that complex interprofessional team communication does not readily reduce to mere observation and recording of events. An interpretive approach is required to meaningfully account for communication exchanges in context. The integration of these two models might provide a significant framework for the construct of efficient team performance.

Take-home messages: This research has advanced evaluation of team communication by allowing us to recognize and represent communication by complexity rather than by reductionism and oversimplification.

7CC/16

Simulation for junior doctors: enhancing non-technical skills training

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Background: One of the most difficult competencies a junior doctor must develop is that of integrating clinical management, effective communication and medical ethics in daily practice. The role of simulation in achieving this is recognised in the CMO Annual Report 2008 and National Simulation Strategy Review.

Summary of work: At Medway Maritime Hospital we have developed a new learner-centric simulation programme for Foundation Year 2 doctors. Candidates in our simulation suite face clinical emergency scenarios complicated by non-technical challenges, e.g. "massive PE resulting from erroneous omission of VTE prophylaxis, with irate relative". Scenarios and debriefings are mapped to the Foundation Curriculum 2012, Crisis Resource Management, and the GMC's 'Good Medical Practice and The Trainee Doctor'.

Summary of results: Using pre- and post-course questionnaires we evaluated how useful candidates found this training in achieving their competency-based curriculum requirements. Personally identified weaknesses included managing ethical conflicts and communication in difficult situations.
Following the simulation, 100% of candidates gave positive feedback on the training overall. Commenting on the most useful aspects, 65% spoke positively of the scenarios delivered, 40% specifically praised the non-technical skills aspect and 65% found the debriefing to be particularly valuable.

Conclusions: Junior doctors value the learning opportunities delivered by simulation based training, particularly in developing their non-technical skills in a safe and supportive environment with debriefing involving their peers.

Take-home messages: By combining technical and non-technical training through simulation, these skills are more transferable to daily practice, allowing junior doctors to deliver safe and effective care whilst achieving curriculum goals.

7CC/17

Core Simulation

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A Buttery (Trent Simulation and Clinical Skills Centre, Nottingham, United Kingdom)
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Background: Surgeons are working in busier more time constrained environments with the European Working Time Directive increasing the variety and unfamiliarity of team members, creating more frequent handovers and providing less training opportunities. It is known outcomes improve in high pressure situations with more experience and that simulation is a bridge to this where training hours are reduced.

Summary of work: A new course has been created to utilise an immersive simulated surgical environment to develop clinical decision making, communication and leadership in dynamic high hazard scenarios. It has been developed specifically for candidates in Core Surgical training (CT1/CT2) to develop registrar level executive skills in the East Midlands Deanery, UK.

Summary of results: Feedback has been extremely positive. Candidates were also assessed in real time by their colleagues using the Non Technical Skills for Surgeons framework.

Conclusions: We have created a new course for core surgical trainees from scratch which aids transition from core trainee to Registrar. The course uses high-fidelity simulated scenarios and benefits from real time assessment of trainees and pre-post course evaluation. We believe this is the beginning of a new era of surgical training for surgical trainees.

Take-home messages: Surgical Simulation is an essential part of future education for surgeons. This is a new course for surgical trainees in the east midlands. This is just the beginning.

7CC/18

Undergraduate simulation training: Enhancing clinical experience and learning opportunities during medical emergencies

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Background: Simulation has rapidly become an essential part of medical education. Within specialty training such as anaesthetics and surgery, there is much evidence that this can lead to effective learning. However, there is limited use of basic simulation training at undergraduate level, especially amongst more junior students. Furthermore, explanation of the multidisciplinary nature of the resuscitation team is lacking at medical school, which compromises students' appreciation for the real-life approach to acutely unwell patients.

Summary of work: We have devised a small-group simulation programme where sessions involve medical students from different year groups participating in basic emergency scenarios, facilitated by junior doctors. This aims to increase exposure, familiarity and understanding of the management of critical events and the processes involved in successfully assessing, diagnosing and treating an unwell patient. Emergencies on the ward are invaluable learning opportunities for all students and familiarisation with these scenarios will optimise their clinical experience. Furthermore, as

simulation becomes more commonplace, the early introduction of this teaching method will be beneficial as their careers progress.

Summary of results: The overall qualitative and quantitative data will be gathered and analysed in July.

Conclusions: Participants complete a pre-simulation questionnaire assessing basic knowledge of emergency scenarios and, following the simulation teaching, complete a further similar questionnaire, with the opportunity for general feedback. A month later, the impact on their ward experiences is also explored.

Take-home messages: Innovative approaches to undergraduate medical simulation training can be invaluable learning experiences and enhance understanding of emergency scenarios.

7DD   Posters: Management
Location: South Hall, PCC

7DD/1
Public versus private health centres - Are there differences in the quality of undergraduate clinical teaching?

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Background: At Uppsala University (Sweden) the medical students do their primary health care clinical rotations at either a private or a public health centre (HC). It has been debated whether the type of ownership affects the quality of clinical teaching at HCs.
Summary of work: A web-based questionnaire, inspired by a seven-category concept from Stanford University, was introduced 2011. The questionnaire had 10 questions regarding different aspects of clinical teaching (Likert scale 1-6). The students were randomly distributed to a public or a private HC. The students practised five afternoons per semester at the same HC during their first four semesters.
Summary of results: Data was collected during four semesters (2011-2012). The students' response rate was 65% (n=1013). In total, 45 HCs were evaluated. The mean ratings±SD for public HCs were 4.61±0.97 and for private HCs 4.47±1.07 (p=0.08). Public HCs received higher mean ratings (p<0.01) for three out of the ten questions: the learning climate at the rotation (5.18 vs. 4.85), the tutor's knowledge of expected learning outcomes (4.71 vs. 4.22) and whether the rotation was well planned (4.49 vs. 4.19).
Conclusions: There was no overall difference in the quality of clinical teaching between public and private HCs. However, one prominent difference was that the tutors at public HCs had greater knowledge of expected learning outcomes.
Take-home messages: Private and public HCs appear to be approximately equal alternatives regarding the quality of clinical teaching. Nevertheless, increased efforts to inform private HCs of expected learning outcomes are particularly warranted.

7DD/2
New Data to Inform Global Workforce Planning and Education of Physician Assistants

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Background: Physician Assistants (PAs) are effective healthcare partners, readily adaptable to an evolving delivery system. Nine countries, from South Africa to the Netherlands, recently launched the profession, through unique adaptation of US education/practice models. This study reports new information on PA education pipelines, programs and roles providing a model of how data can inform global planning and curriculum development.
Summary of work: Three national databases were reviewed for relevant variables. The Physician Assistant Education Association (PAEA), the Centralized Application Service for Physician Assistants (CASPA) and the National Commission on Certification of Physician Assistants analyzed information on PA pipeline, education and practice.
Summary of results: There are 170 educational programs (typically 26 months, offering Master's Degree) producing ~6,035 annual PA graduates; 71 institutions are seeking new program accreditation. Over the past 5 years, program capacity has increased on average by 17%. During the 2011/2012 admissions cycle, 18,501 unique applications were initiated, (10% increase; average age 27; 71% female). New data on PA practice describes 36 variables including geographic distribution, employment patterns, and description of clinical positions, activities and indirect services. Relevant study data will be reported at the conference.
Conclusions: Collectively, this study provides important new information and model data collection strategies that inform international workforce policy and planning of educational programs to build workforce capacity through nonphysician providers.
Take-home messages: New models of inter-professional practice promote the utilization of physician assistants in doctor led teams. Armed with PA pipeline and graduate data, educational institutions can design programs that produce providers ready and willing to deliver high quality, effective care.

7DD/3
Medical education in Iran

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Background: Medical education in Iran stands to benefit from 3 decades of well organized developments: new medical schools, Ministry of Health and Medical Education, strong primary care in rural areas, a commitment to evidence based medicine, mandated continuing medical education.
Summary of work: In this project, we review some of the important characteristics of medical education and its progression in Iran.
Summary of results: Medical education in Iran is growing quantitatively and qualitatively. The number of medical schools has increased from 13 in 1979 (before the 1979 revolution) to 48 today, representing approximately one school for every 1.5 million people. Iran has been ranked ninth out of 235 countries in terms

of the number of medical schools Study in state universities is free. There is a highly competitive national examination for entering these programs.

Conclusions: Despite the eight-year war with Iraq, U.S. sanctions, three United Nations economic sanctions, and consequent reduced government budgets for public spending, Iranian medical educators have not been disappointed from undertaking training programs in a wide variety of fields.

7DD/4

Coordination of Medical Residency for Municipal Public Health Service: Analysis of Results

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Izabel Cristina Meister Coelho (Faculdades Pequeno Príncipe, Medical Education, Curitiba, Brazil)

Background: National Curriculum Guidelines point to the integration of students with the Health System and the health needs of the population (ALMEIDA, 2005).

Summary of work: The objective of this report is to present the experience of a Municipal Health Department to coordinate the residency program. The city government took over the driving making use of pedagogical training of tutors in active methodologies, creation of jobs, commitment of financial resources and publication of laws guaranteeing rights and institutionalization of remuneration for the teaching service to physicians.

Summary of results: Since 2011 30 places are offered annually for which there was an increasing number of candidates passing 76-420. The precepts are physicians who work in services and have different types of links with the Prefecture. It is difficult to pay for medical teaching function outsourced because the statute of cooperatives has as its object the provision of medical care exclusively.

Conclusions: After two years the Ministry of Education has evaluated positively the teaching program and granted final accreditation. The health management of two municipalities in the state has requested consultancy to replicate the experience on their scenarios.

Take-home messages: As a benefit to the services, the involvement of physicians with the functions of preceptorship contributed to: development of protocols, interface negotiation skills among the various specialties favoring the establishment of networks of health care, increased problem solving services.

7DD/5

Self-perceived confidence levels of Community Health Workers to carry out their Roles within the Primary Health Care Outreach Teams

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Background: Community Health Workers (CHWs) will be employed by Government, and will be part of the ward based PHC outreach team. Their role is seen in strengthening health promotion and prevention. The training of Community Health Workers to fulfil their roles has been tasked to NGO's. The curricula contain the theoretical base but the practical application of the skills/abilities needed to fulfil their roles, has not been included.

Summary of work: This study investigated the confidence levels of CHWs related to their roles and responsibilities using an online survey with a Likert scale, to rate the levels of confidence. This was used to identify the areas for capacity building needed and develop the training intervention. After completion of training the same survey was completed again and pre/post comparisons were made. Data was captured using survey monkey, with analysis of frequencies and cross-tabulations on quantitative variables.

Summary of results: Participants had been working in their communities, for more than 2 years prior to them being recruited for the outreach teams. There was a significant increase in confidence levels pre and post intervention regarding skill and ability. 68% of participants' confidence levels in terms of working in ward based teams increased post intervention. The participants not feeling confident to collect information shifted from 88% to 12% post intervention.

Take-home messages: The mastery of skills needed to fulfil the tasks has a direct impact on the confidence of CHWs. Their input in identifying the skills gap added to the value placed on the training.

7DD/6

Curriculum Development, Assessment and Clinical Rotations of Clinical Associates With Distance Learning At A Clinical Learning Centre

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Background: Clinical Associates (CAs) are trained at 3 Universities in South Africa. They graduate with a Bachelors degree in Clinical Medical Practice (BCMP). The training of these CAs is based on distance and service delivery training on site in a hospital. After 3 years they are placed as Physician Assistants in a District Hospital and always work under the supervision of a registered medical officer.

Summary of work: What are the curriculum development, assessment and rotations of these CAs working at a Clinical Learning Centre (CLC) with distance learning from the middle of the first year until the end of the third year?

Summary of results: The learning site was evaluated with a reflective in depth study of the curriculum,

assessment and clinical rotations at a CLC with questionnaires to facilitators at different CLCs for evaluation of results and impact. The curriculum is divided in 3yr clinical study and covers all the medical systems. Assessments are done with observed consultations (Mini CEX) and patient studies, as an assignment, according to their clinical rotations.
Conclusions: The clinical rotations entitle that the CAs work certain hours in the Hospital where the CLC is based.
Take-home messages: The overwhelming feeling of facilitators is that the curriculum assessment and clinical rotations are adequate to be a competent CA.

7DD/7
The utility of a tutorial booking website

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Background: Every teaching session requires a degree of logistical organisation that potentially creates a barrier to teaching.
Summary of work: We created a tutorial booking website to reduce the logistical burden of organising tutorials and increased incentive to teach. The website allows tutors to advertise their teaching to large pools of medical student users, and students to sign-up to teaching via the website. Feedback is also integrated into the site via online forms generated after every teaching session. All teaching sessions are automatically documented on each user's profile page.
Summary of results: We monitored the teaching activity on the website over a 10 month period. Over 850 users in Oxford organised over 500 teaching sessions, including clinical skills, peer-to-peer and bedside teaching and university examiner and teacher training days. 118 doctors and 223 students completed questionnaires after using the site. They rated it easier to organise teaching sessions through the site compared to traditional methods like email, and gain objective feedback from their teaching (all p<0.05).
Conclusions: The site allowed users to connect and communicate more easily without the use of mass emails. It facilitated the organisation of teaching, generation of feedback and documentation of sessions, and allowed the quantity and quality of teaching to be monitored and increased.
Take-home messages: This website has helped to improve the quality and quantity of teaching in the Oxford deanery, and could have similar applications in other medical schools. Indeed, the site is now being piloted in Edinburgh and London.

7DD/8
The silence of the PPandas-challenges and failures to establish 'habitats' for simulation-based team training in a large teaching hospital

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Caroline Davidson (St George's Healthcare NHS Trust, Paediatrics, London, United Kingdom)

Background: Seamless quality of care in hospitals involves crossing clinical area boundaries. Developing and distributing expertise across different hospital teams can be facilitated by creating collaborative training networks. Analysis of constraints during attempts to implement sustainable collaboration can contribute to understanding work-place learning and organisational resilience.
Summary of work: To learn from and adapt our response after poor implementation of simulation-based collaborative learning we critically examined our assumptions and strategies: 1. How effectively were goals generated and agreed upon? 2. What conceptions of work-place learning, safety and organisational resilience learning were implicit or explicit in plans to use simulation-based learning technologies? 3. What social and material constraints impinged on success? We conducted a Delphi consensus analysis with clinical and educational leads in neonatology, A&E, Maternity and Paediatric wards. Faced with a persistent failure to implement plans after 6-months we conducted focus groups and individual interviews with key clinical decision makers.
Summary of results: Despite much consensus on goals, implementation was troublesome. Themes emerging from qualitative data included: contested ideas of simulation-based training; how leadership motivation can be undermined by central quality audits which 'crowd out' bottom up training initiatives; the inertia of historical routines and hierarchies in clinical areas.
Conclusions: Reproduction of past practices rather than a reconfiguration of practice across clinical boundaries is a default solution in the face of seemingly intractable obstacles.
Take-home messages: Adequate resources and understanding of factors in organisational change and work-place learning are vital ingredients for future transformation of practices.

7DD/9

Do students need a part-time, flexible medical degree programme?

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Joy Hinson (Barts and The London, School of Medicine and Dentistry, Queen Mary, University of London, Centre for Medical Education, London, United Kingdom)
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Background: A UK medical degree is generally taken full-time over 5 years, but with the increased emphasis on widening participation, a changing student demographic, increased university fees and concerns regarding student health and well-being, is there a need for flexible part-time provision? The aim of this research was to explore current student perspectives on part-time study.
Summary of work: Data was collected by: (a) On-line questionnaires distributed to (i) current medical students at Barts and The London; (ii) biomedical-science students at Queen Mary, University of London; (iii) potential applicants from local non-selective schools. (b) Focus groups with students to further explore issues arising from the questionnaires.
Summary of results: Preliminary responses to the questionnaires from medical and biomedical-science students (n=167) suggested they saw the benefits of part-time provision, identifying that those with caring responsibilities, chronic-health conditions and financial dependents would benefit most from a flexible course. There was a balance of opinion as to whether a part-time degree would increase students' likelihood of applying for medicine. Emerging themes from the qualitative data showed evidence of a range of factors that might influence students' attitudes towards part-time study: finances, time constraints, personal responsibilities, extra-curricular activities, attitudes of significant others.
Conclusions: The evidence suggests that students perceive that a flexible, part-time medical degree may be beneficial for certain student groups.
Take-home messages: The traditional model of a full-time medical degree needs to be revisited to determine whether it is best meeting the needs of an increasingly diverse student population.

7DD/10

New Dimension of Postgraduate Education at TSU Faculty of Medicine in Georgia

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Nato Pitskhelauri (Tbilisi State University, Faculty of Medicine, Tbilisi, Georgia)

Background: Higher Education system of Georgia has been in the process of extensive reforms since 2005, when two major innovations were carried out: the new law about Higher Education was adopted and Georgia joined the Bologna process.
Summary of work: With regard to the new legislation and Bologna process three cycles of education (Bachelor, Master and PhD) and ECTS system were implemented. According to the Law the duration of PhD program is 180 ECTS. At the level of Tbilisi State University the minimal standards of PhD Education was elaborated and approved by TSU Academic Council. The document clarifies the minimal requirement for admission, enrolment and access criteria to the programs, requirement for the PhD thesis, supervisor, evaluation etc. According to this document the curriculum of each PhD program in TSU should include teaching component (40-60 ECTS) and research component (140-120 ECTS). Training in transferable skills is part of the teaching component.
Summary of results: At the level of Faculty of Medicine the Statement of PhD Education was elaborated and the additional requirement for the PhD thesis, supervisor, and evaluation was implemented (eg, an article in a peer-review journal should be published, assessment board includes one member from other Educational Institutions, etc).
Conclusions: The aim of the Faculty of Medicine is harmonization of PhD Education in Georgia with PhD Education in Biomedicine and Health Sciences in the European Higher Educational Area.
Take-home messages: The case of implementation of the new vision of PhD programs at Faculty of Medicine at Tbilisi State University is an example of establishing the new paradigm of PhD Education in Medicine in Georgia.

7DD/11

Public Private Partnership in Healthcare System – 60 years' Experience of a Private Medical College in Mangalore, India

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**Latha Prabhu** _(Kasturba Medical College (Manipal University), Anatomy, Centre for Basic Sciences, Bejai, Mangalore 575001, India)_

Background: Public Private Partnership (PPP) is an accepted norm in the healthcare and higher education system in many advanced and advancing countries, benefiting all stake holders in the system.
Summary of work: Kasturba Medical College (KMC) Mangalore, India, is celebrating its Diamond Jubilee in 2013. The Medical College ventured into PPP with Karnataka Government 60 years ago. The benefits of PPP to private partner, public partner, medical students and patients were studied.
Summary of results: Karnataka State Government has a budget of Rupees 16 crores per year for two Government Hospitals in Mangalore. Kasturba Medical College, Mangalore spends Rupees 11 crores per year on these two hospitals. Further, it spends Rs. 1.25 crores per year on clinical investigation procedures. 52 MBBS seats and 27 postgraduate seats at KMC are filled by the Government quota. Qualified physicians and surgeons of KMC work round the clock in these hospitals.
Conclusions: The PPP at place in Mangalore benefits all stake holders and is a win-win situation. KMC gets 630 teaching beds in these hospitals and the students are exposed to a vast plethora of clinical case for their study. The government gets the best services of the faculty and manages to provide seats in higher education institute. Patients from the poor sections of the society utilize good healthcare services available at nominal cost.
Take-home messages: PPP is a unique and successful venture that improves and strengthens the healthcare system.

7DD/12
Increasing Tuition Fees: Effect on Uptake of an Optional One-Year Intercalated Science Degree by Medical Students at King's College London

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Aranga Lingham (King's College London School of Medicine, Medical Education, London, United Kingdom)
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Background: In 2006, tuition fees for UK medical students doubled from £1,125 (€1, 249) to £3,175 (€3,524). In a 2009 survey, King's College London students indicated higher fees would deter them from taking an optional one-year intercalated science degree. We aimed to follow-up these cohorts (2005/6 and 2007/8) to determine if increased tuition fees influenced the uptake of intercalated degrees.
Summary of work: In February 2013, we compared the effect of increased fees on low fees (n=344) and high fees (n=340) medical student cohorts with separate analyses by student entry groups: five year mainstream (n=585) and six year "Access" course (n=99). Graduate and non-EU overseas entrants were excluded.
Summary of results: There were no significant differences in the uptake of a one-year intercalated science degree between low fees and high fees mainstream students (67% v 69%) nor for "Access" students (58% v 43%). Significantly fewer students on the six- year "Access" course took an intercalated degree compared to mainstream students (51% v. 68% p<0.01).
Conclusions: Increased tuition fees had no significant effect on the uptake of a one-year intercalated science degree. This did not support students' predictions and might be explained by the 2007 introduction of a new UK postgraduate training application process which credited intercalated science degrees. Compared to mainstream students, there was a lower uptake of intercalated science degrees on the "Access" course.
Take-home messages: Increased fees had no significant effect on the uptake of a one-year intercalated science degree. With recent trebling of tuition fees in the UK, the consequences should be monitored for detrimental effects on training.

7DD/13
Financing Post Graduate Medical Education in the European Union

Abe Meininger (University of Groningen, UMC Groningen Postgraduate School of Medicine, University Medical Center Groningen, Groningen, Netherlands)
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Jan Borleffs (University of Groningen, Postgraduate School of Medicine, University Medical Center Groningen, Groningen, Netherlands)
Jan Jacobs (University of Groningen, Department of Economics, Groningen, Netherlands)

Background: Although healthcare education and training eventually improves health outcomes, medical education is often a low priority for resources. This brings forth a dilemma; new specialists and GPs are needed to ensure continuity in health care, but postgraduate medical education (PGME) is expensive. The costs are often paid for by the government. To repay these costs a physician pays taxes and serves a fundamental role to society. This is lost when physicians migrate. The aim of this study was to provide an overview of the different PGME financing strategies in the target countries and the influence of physician migration on these strategies.
Summary of work: Data from a partially structured questionnaire were collected through face-to-face interviews with one expert in each of the eight selected EU countries. Additionally a literature review of current PGME financing policies and migration patterns was done. The questionnaire included questions and statements on three aspects, i.e. Current situation and

trends, Importance of developments and desired innovations and Attainability of desired innovations.

Summary of results: In most of the target countries the government regulates and finances at least part of the PGME. All countries agree that PGME has to be financed by the government. Due to EU regulations, physicians are free to migrate within the EU. In some countries this causes problems.

Conclusions: Physician migration influences financing strategies of PGME.

Take-home messages: We suggest research in the field of financing PGME in order to improve healthcare quality and move further in coordinating tax and employment policies.

7DD/14
Application of the RIME Framework for Education Administrators' Competencies

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Background: Before 2010, administration of medical educational programs in Singapore has traditionally been the "part-time job" of departmental secretaries. However, with the introduction of postgraduate residency programs and their ownership by each sponsoring institution, and with it the mammoth tasks of program management and delivery, it was no longer reasonable or possible for the departmental secretaries to do it as a "part-time job".   To systematically engage in tasks such as resident tracking, assessment and program evaluation as well as accreditation of programs, fulltime Program Coordinators (PCs) were hired by sponsoring institutions. The presentation will focus on how one sponsoring institution developed a process to evaluate the performance and progression of Program Coordinators in a systematic way using best evidence practices.

Summary of work: The RIME framework was used to define the developmental stages of PCs as a Reporter, Interpreter, etc., mapped against the competencies expected of PCs in NHG Residency. The matrix developed defined the expectations for each competency at each stage. It will be shown during the presentation.

Summary of results: Program Directors (reporting officers of the PCs), the PCs and the Institutional Coordinator have a common frame of reference for evaluating the performance of the PCs, reducing inter-rater differences and allowing meaningful feedback to be given to PCs for their development.

Conclusions: The framework has thus far resulted in more objective evaluation of the program coordinators in NHG Residency but more importantly, started meaningful discussions about the development of the program coordinators as professionals for education administration.

Take-home messages: It is possible to meaningfully apply the RIME framework beyond the traditional way

that it has been used for the evaluation of medical student

7DD/15
Communicating with teachers: the key to change education management

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Pepa Sanchez de Miguel (Universidad de Navarra, School of Medicine, Department of Medical Education, Pamplona, Spain)
Nieves Diez (Universidad de Navarra, School of Medicine, Department of Medical Education, Pamplona, Spain)
Cristina Rodriguez (Universidad de Navarra, School of Medicine, Department of Medical Education, Pamplona, Spain)
(Presenter: Marta Ferrer, Universidad de Navarra, School of Medicine, Department of Medical Education, Pio XII, 36, Pamplona 31008, Spain)

Background: Our students are distributed among different State hospital locations that makes it complicated to manage and communicate. We started a Medical Education Department to facilitate and change this process.

Summary of work: We built a questionnaire delivered to each teacher from three clinical settings, School of Medicine teaching hospital (SOM), public hospital (PH) and Family practice settings (FP). We utilized a web-based software (Encuesta Fácil, by Universia, Madrid, Spain) that allows web response and post hoc statistical analysis. We also analyzed if there were significant differences between teaching settings. We explored three areas: 1. Self perception of burden and dedication; 2. Influence in professional performance; 3. Formal aspects of communication.

Summary of results: We obtained a response rate of 25% from the SOM teaching hospital, a 40% response rate from PH and a 55% rate response from the FP settings. We found significant differences in higher burden perception between hospitals (SOM and PH) and FP settings. The majority agreed that teaching does not impair patient care with a higher perception in FP settings agreeing that having students does improve patient care. We finally found that a big number of teachers would like to receive more information on learning objectives from the School of Medicine.

Conclusions: Teaching does not interfere with patient care and could enhance professional performance. In spite of management perception, teachers demand more communication.

Take-home messages: In order to implement changes and manage education, a key step is to understand teachers' perception and to increase communication.

7FF ePosters: The Teacher
Location: North Hall, PCC

7FF/1
Strong collegial networks and a desire for change are important for teachers who develop towards a scholarship of teaching and learning

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Gudrun Edgren (Lund University, Faculty of Medicine, Lund, Sweden)

Background: Teachers undertaking scholarly inquiry into teaching and learning can improve education. Many universities wish to promote such undertakings e.g. with teaching awards and academies.
Summary of work: The aim of this study is to better understand circumstances where teachers develop towards a Scholarship of teaching and learning, SoTL, in a research-intensive faculty of medicine and health sciences. We have interviewed teachers who have published peer-reviewed articles on teaching and learning and/or are members of the Teaching Academy.
Summary of results: Teachers' scholarly inquiry into teaching and learning was primarily motivated by their concern for their professional and/or academic field. Important goals were improvement of healthcare and professional skills and values, strengthening of emerging academic disciplines, and professionalization of teaching. Students were seen as future colleagues and important agents for development. SoTL was described as a shared enterprise, where colleagues and extended networks were indispensible. Courses in medical education had been important in providing theory, shared vocabulary and opportunities to exchange experiences and create networks. Award systems and career advantages had not been important. All teachers had permanent positions and described having both freedom and responsibility in their work. Other circumstances described were concern and understanding of learning as a cornerstone of medical or health professions and, for some, similarities between methodologies in educational and medical/health inquiry.
Conclusions: Universities who wish to promote scholarly educational development should create opportunities for teachers to meet and create networks across professions and disciplines as well as positions within which teachers can undertake such enterprises. Award systems are probably not as important.

7FF/2
Types of potential biases within upward feedback assessments of medical training

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Paul Baker (Royal Bolton Hospital, Internal Medicine, Manchester, United Kingdom)

Background: The General Medical Council regulates UK medical training and upward feedback has been adopted to monitor teaching performance as a quality control of training for trainees. However, multiple biases exist, thus the accuracy of upward feedback is debatable. Through identifying influencing factors of upward feedback, we aim to provide suggestions to minimise upward feedback bias in medical training.
Summary of work: This is a systematic review using a structured search strategy. Thirty-five databases were searched. Results were reviewed and relevant abstracts were shortlisted. All studies in English, both healthcare and non-healthcare literature, were included. No time limit was set. Full articles obtained were further screened for relevance. A simple pro-forma was used initially to identify the pertinent areas of upward feedback, so that a focused pro-forma could be designed to extract data. PB and AYZ reviewed articles separately and disagreements were resolved through negotiated consensus.
Summary of results: A total of 140 healthcare-related articles and 69 non-medical articles were acquired. The results will be presented and solutions to minimise upward feedback bias will also be discussed.
Conclusions: Upward feedback improves ratee performance, but covert and overt bias still exists. Fear, retaliation, confidentiality and accountability are commonly addressed within the literature. Furthermore, the majority of studies only cover Kirkpatrick level-1, Reaction. More studies that go beyond level-1 can increase the awareness of different evaluation techniques in training programs. Moreover, triangulation of different feedback methods can optimise training quality.
Take-home messages: Upward feedback can improve ratee performance, but methods in reducing bias may be affected by financial and time constraints.

7FF/3
Development of an instrument for evaluating clinical teachers sensitive to the Japanese culture

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Renee Stalmeijer (Maastricht University, Faculty of Health, Medicine and Life Sciences Department of Educational Development and Research, Maastricht, Netherlands)
Sei Emura (Saga University Hospital, Center for Graduate Medical Education Development and Research, Saga, Japan)

Sue Roff (Dundee Medical School, The Centre for Medical Educations, Dundee, United Kingdom)
Albert Scherpbier (Maastricht University, Faculty of Health, Medicine and Life Sciences, Maastricht, Netherlands)

Background: No valid instruments for evaluation of clinical teaching within Asian cultures have been reported within the literature. The majority of instruments that have been published in the field of medical education originate from Western countries. One of the factors which is heavily influenced by cultural issues when developing evaluation instruments is the content validity of an instrument.

Summary of work: To develop an instrument sensitive to the Japanese culture and with good content validity for evaluating a clinical teacher, modified Delphi approach was used, involving three groups of stakeholders (5 education experts, 12 clinical teachers and 10 residents).

Summary of results: Two rounds of Delhi were conducted. Through the procedure, 52 prospective items were reworded, combined or eliminated. Finally, a 25 item instrument was developed.

Conclusions: This is the first validated instrument for assessing clinical teachers reported from Asian countries. The instrument has similarities and differences compared with instruments developed in Western countries. Our findings suggest the content of the instrument should not be universal, but cultural aspects should be taken seriously.

Take-home messages: 1. The content validity of an instrument for assessing clinical teachers can be influenced by cultural aspects. 2. Cultural and geographical background should be considered more in medical education.

7FF/4
The Effective Factors for Teaching competency of nursing faculty in Iran

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Mansoreh Farahani (Faculty of Nursing & Midwifery of Tehran University of Medical Sciences, Nursing Management, Tehran, Iran)
Forough Rafii (Faculty of Nursing & Midwifery of Tehran University of Medical Sciences, Medical & Surgical Nursing, Tehran, Iran)

Background: Competent nurse teachers have an important effect on the success of nursing students and improving the quality of nursing care. Acquiring teaching competency is a dynamic process that depends on a variety of socio-cultural contexts.

Summary of work: A grounded theory approach was used and took place in universities of Tehran. Data collected through 14 in-depth individual interviews were conducted with purposeful and theoretical samplings from ten participants' of nursing teachers to better understand about their experience. Interviews were taped, transcribed and analysed using the constant comparative method.

Summary of results: Two categories of internal and external factors that influenced the acquisition of teaching competency for nurse teachers emerged: Internal factors such as 1) Individual characteristics, 2) performance characteristics and 3) Educational experiences, and External factors such as 1) Organizational factors and 2) Socio-cultural factors. The view of nurse teachers about concept of nursing and nursing education has the most effect on their acquiring teaching competency.

Conclusions: Understanding the factors that influence acquiring of teaching competency for Iranian nursing teachers is important as it broadens prior knowledge and confirms the factors that are important to facilitate attaining competency and to aid success in faculty development strategies.

7FF/5
Enhancing co-operation between teachers – a co-operational pedagogical training for teachers

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Background: The culture of teaching is often individualistic. Pedagogical training concentrates often on educating individual teachers in higher education.

Summary of work: A co-operational and communal pedagogical training for all the university lecturers at the Faculty of Pharmacy, University of Helsinki, was designed and conducted at the Faculty during the year 2011-2012. Program consisted of four contact meetings with additional three small group meetings in between and working in Moodle environment. Teachers aimed at improving their teaching practices in the small groups. Teachers produced a learning diary during the course and they were interviewed after the course.

Summary of results: Teachers were satisfied with the training. The attitude of the participant teachers was positive towards the training. They felt that they had learned and been able to exchange ideas with their colleagues. They felt that the co-operation between the teachers increased during the course. As one outcome of the training a handbook of teaching at the Faculty of Pharmacy was produced. The handbook consists of the best teaching practices gathered from the participants of the training.

Conclusions: Improving education at curriculum level needs co-operation between teachers. Thus, pedagogical training should include communal aspect and not concentrate only on educating individual teachers. Pedagogical training including co-operational

aspect works well and may increase the sense of community of teachers.

Take-home messages: There is a need to improve co-operational pedagogical training for university teachers.

7FF/6

Appreciative Inquiry as a frame for developing the Scholarship of Teaching: a Constructivist Approach to Faculty Development

Richard Blunt (Department of Educational Services (DES), St. George's University, St. George, Grenada)

Background: Reflective practice (Schön 1983, 1987, 1993) prepared the way for Boyer's (1990) introduction of the scholarship of teaching. Boyer's work appealed to teaching faculty and changed faculty evaluation. Unfortunately, the evaluation of teaching has become increasingly synonymous with student ratings, which has weakened the project of developing a scholarship of teaching. This paper explores a qualitative approach to faculty development using reflective practice to develop the scholarship of teaching meaningfully.

Summary of work: Viewing reflective practice as a process of faculty and organizational development, I considered the possibility of couching reflective practice in a framework of appreciative Inquiry (AI) (Cooperrider, 1987, 2003). Appreciative Inquiry encourages the construction of rich narratives as a foundation for reflecting on career development. I used this approach with faculty who asked for help with developing their teaching portfolios.

Summary of results: Faculty found affirmation and inspiration for documenting and developing their scholarship of teaching by exploring their careers using the steps of Affirmative Inquiry.

Conclusions: Appreciative Inquiry provides a meaningful approach for reflecting on faculty's teaching goals, values and theory-informed practice by encouraging the construction of personal narratives that have given direction to their careers.

Take-home messages: Despite the current trend of reducing faculty evaluation to student ratings, the use of affirmative inquiry provides a framework through which to approach the scholarship of teaching more meaningfully using reflective practice.

7FF/7

Special competence in medical education in Finland

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Veli-Matti Leinonen (University of Turku, Primary Care, Turku, Finland)
Hannu Halila (Finnish Medical Doctor's Association, Finnish Medical Doctor's Association, Helsinki, Finland)

(Presenter: __Minna Kaila__, University of Helsinki, Hjelt Institute, Mannerheimintie 172, P.O. Box 41, Helsinki 00014 HY, Finland)

Background: In 2008, Association for Medical Education in Finland took an initiative to establish a special competence in medical education. The competence was aimed to benefit medical teachers working outside academic centres and without scientific merits. The purpose of this study is to survey the success of the initiative.

Summary of work: The portfolios of the accepted applicants (N = 137) were included in the study. From the portfolios, demographic data, educational experience, received pedagogical education and educational scientific activity were extracted.

Summary of results: Seventy percent of the applicants were female (N = 97), and their mean age was 48,42 years (SD 6.53). Seventy-five percent of them were PhD, and 43.3% were associate professors. Half of them are working in the hospital district of capital city. The most frequent specialities were conservative specialities (29.2%), general practitioners (27.3%) and operational specialities (16.8%). The great majority (84.7%) had working experience mainly as full-time employees (mean duration 63.54 months) and 45.4% had worked as part-time teachers in or outside the university (mean duration 56.7 months). Eighty-one percent of the applicants had received more than half the mandatory pedagogical education in the university and 75.9% had received the elective pedagogical education similarly. Thirty-eight applicants had participated in an international educational congress (AMEE, ADEE or other). Participation in an international congress correlated significantly to scientific activity (p<0.01).

Conclusions: Great majority of medical teachers having special competency have academic background. Participation in international congresses encourages scientific educational activity.

Take-home messages: Medical teachers working outside university clinics have major difficulties in receiving pedagogical education.

7FF/8

Evaluation of an Experiential Postgraduate Certificate Programme for GP Educators

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Abdollah Tavabie (Surrey Sussex Department of Postgraduate General Practice Education, London, United Kingdom)

Background: Forty one general practitioners completed a pilot Postgraduate Certificate in Medical Education and Strategic Leadership - a partnership between KSS Postgraduate Deanery and Kent University. Programme content focused on the role of GPs as clinicians, educators and workers in a multidisciplinary team.

Summary of work: A qualitative evaluation comprising: On-line questionnaire of GP Educators with 34 (83%) responses; 26 Semi-structured interviews.

Summary of results: Local, facilitated learning sets were significant in enabling participation. Students reported integrating theory with everyday practice including how to apply research and use audit to enhance the quality improvement of patient care. The reflective portfolio assessment strategy afforded a dynamic, personalised journey of professional development. The IT platform provided GP educators support. The pilot was significant in demonstrating a high completion rate for a postgraduate programme. Confirmation of adopting learning sets and a portfolio assessment strategy whilst positively evaluated presented anticipated challenges in terms of consistency of delivering the programme and marking the portfolio: mitigation included meetings with the learning set facilitators and calibration exercises undertaken with support from internal and external moderators.

Conclusions: The evaluation is acknowledged at Kirkpatrick level 2; further evaluation including behavioural change and impact on patient care is achievable through the unique coupling of the academic assessment with the professional re-accreditation portfolio.

Take-home messages: To develop a postgraduate programme with a high completion rate key strategies include: A programme with high content and face validity; Assessment built on personalised portfolios; A Strategic approach to improve reliability; Effective IT support.

7FF/9
Educational quality system and the improvement of supervision skills

Robert Oostenbroek (Albert Schweitzer Hospital, Education, P.O. Box 444, Dordrecht 3300 AK, Netherlands)
Monica Van de Ridder (Albert Schweitzer Hospital, Education, Dordrecht, Netherlands)
On behalf of the Programme Committee (Albert Schweitzer Hospital, Dordrecht, Netherlands)

Background: From 2009 to 2013 we developed and implemented an educational quality system (EQS) consisting of a range of educational tools (e.g. facilitated discussion on supervisory topics, faculty assessments and Teaching on the Run). The purpose of this EQS is to improve faculty teaching competences. During these years we especially focused on the competence of supervising residents in formulating learning goals.

Summary of work: Each medical discipline is annually asked to evaluate faculties' teaching competences - including the competence of teaching goal-setting - and to discuss outcomes with faculty and residents together. The Postgraduate Committee yearly monitors results for each discipline. Based on the outcomes medical disciplines are stimulated to use EQS tools.

Summary of results: Although the structure of EQS as a whole is functioning, results in 2012 hardly differ from the outcomes of former years. From 2010-2012 the mean self assessment scores for faculty (n=146) were 3.6, 3.2, and 3.3, residents (n=108) give them a slightly higher score 3.8, 3,5 and 3.6. In general faculty discuss the outcomes with residents on a superficial and infrequent manner. Of the EQS tools the Teach-the-Teacher programme is mostly used.

Conclusions: Although faculty uses the EQS tools, why does it not lead to improvement of their supervision of goal-setting skills? The awareness of lack of competence might be higher if the discussion of outcomes with residents and faculty is facilitated and more tailored to the educational needs of the different disciplines.

Take-home messages: The dialogue on educational topics between faculty and residents profits from external facilitation.

7FF/10
Development of a Faculty Development Program at a new regional expansion campus: An innovative integrated and collaborative approach

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Pamela Coates (University of Toronto, Faculty of Medicine, Toronto, Canada)
Lori Innes (University of Toronto, Faculty of Medicine, Toronto, Canada)
Karen Leslie (University of Toronto, Faculty of Medicine, Toronto, Canada)

Background: A regional campus was opened as part of an established medical school within a new academic community which required rapid training of new teachers and engagement of clinicians. This presentation will described the development of a new customized locally delivered Faculty Development (FD) program that was designed with unique features to engage and prepare new teachers, our experience, and lessons learned.

Summary of work: A situational analysis was conducted that produced an innovative FD Conceptual Framework and 7 principles that guided the development of an integrated and collaborative FD approach. The goal was to align: (1) strategies to assist new community teachers to implement best practices in teaching and learning; (2) preparation of medical students to engage with a new community-based academic setting; and (3) preparation of the new teaching clinical environment to support medical students and new teachers.

Summary of results: The current program offers over 100 FD sessions annually with 1/3 of the sessions delivered via an innovative "Just-in-time" FD approach that we call EduCafes, and that have been extremely popular. The overall program has had great uptake with over 1500 participants over the past 2 ½ years with 95% of the participants indicated that their expectations were met.

Conclusions: The approach used to develop the FD program was effective in designing an innovative framework and strategy to meet the unique needs of our new academic community.

Take-home messages: To create faculty engagement and preparedness within a new academic community, we need to integrate understanding of the local practice context into the design of FD initiatives.

7GG ePosters: Clinical 1
Location: North Hall, PCC

7GG/1
An Assessment of Ward Rounds and Clinics for Medical Students in their Child Health Block

Pretin Davda (University of Leicester, Department of Medical and Social Care Education, Leicester, United Kingdom)
Elain Carter (University of Leicester, Department of Medical and Social Care Education, Leicester, United Kingdom)

Background: Ward rounds and clinics are an integral part of medical student learning, utilising experiential learning theory and forming the foundations of structured clinical placements. In these days of increasing student numbers and increased use of e-learning, they preserve and provide valuable patient contact, however experiences are often variable.
Summary of work: This study assessed whether these environments helped students learn key skills such as Paediatric clinical skills and what attributes of the teacher contributed to a good learning experience. One block of medical students completed a questionnaire 3 weeks into their placement (n=32, 100% response rate), which provided both quantitative and qualitative data.
Summary of results: 1) The majority of students found ward rounds and clinics useful and enjoyable. 2) In both settings, over 75% of students learnt how to take a Paediatric history and perform an examination, how to communicate with patients and families and how to manage specific Paediatric problems. 3) Qualities of doctors that contributed to the learning experience included: Active involvement and questioning; Enthusiasm and willingness to teach; Friendly; 4) Ward rounds could be improved by increasing students' involvement.
Conclusions: Paediatric ward rounds and clinics allowed the majority of students meet the important learning objectives. However, increasing student involvement would further improve the learning experiences.
Take-home messages: 1. Ward rounds and clinics create useful student learning experiences in the Child Health Block. They should therefore continue to be an essential component of clinical placements. 2. Interactive teachers who explain, ask questions and involve students in discussions contribute to a greater learning experience.

7GG/2
What are the barriers to learning clinical reasoning?

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Background: Currently little is known about how new clinical students approach diagnostic problem solving. The initial part of this process involves the acquisition and prioritisation of clinical information. The pathway to the acquisition of clinical competence requires the assimilation of a substantial amount of biomedical information. They then have to access this, integrate it with patient information and generate a coherent diagnosis.
Summary of work: Twenty 3rd year medical undergraduates interviewed simulated patients. The students then reviewed their consultations with the researcher. Student commentaries were taped digitally and their hypotheses and diagnostic processes were thematically coded. Students then completed a previously validated Clinical Reasoning and Diagnostic Thinking Inventory Form, these were then analysed.
Summary of results: Participants used a variety of hypothesis generation methods; some were linear, others were initially narrow or broad, and some were unstructured. They used mainly analytical reasoning with some non-analytical reasoning. Qualitatively, students described difficulty in integrating prior knowledge into the clinical context. They also had difficulties formulating questions, and prioritising the information obtained.
Conclusions: Students employ different models of clinical reasoning. They experienced both problems integrating prior knowledge and interpreting the significance of the clinical symptoms they elicited. These issues adversely initially affected their ability to develop diagnostic skills.
Take-home messages: Novice clinical students use a variety of ways to solve diagnostic problems during a consultation. A major barrier is the initial acquisition and prioritising of the clinical information.

7GG/3
Interviewing Adolescents Across the Curriculum Continuum: Sex, Drugs & Rock 'n' Roll

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Background: Interviewing adolescents requires a particular skill set. The Structured Communication Adolescent Guide (SCAG) has been developed as a teaching, learning and assessment tool for medical students, residents and physicians, to obtain feedback from adolescents, both standardized and real patients. The goal is to improve feedback to learners on their adolescent interviewing.

Summary of work: The SCAG was developed after a randomized control study demonstrated that structured feedback significantly improved medical students' interviewing skills of adolescent standardized patients, both immediately and with sustained effect. A recent study has shown that undergraduate training with the SCAG has produced sustained effect into residency education

Summary of results: This E-poster will show how the SCAG can be used in undergraduate, post graduate and CME settings. The SCAG is reliable with untrained adolescents (R=0.85)2 and therefore can be used independently of faculty time. It is a useful tool in the clinic, ER and ward settings to produce a formative evaluation of the learner. Developed at a grade 8 reading level (age 12-13 years) the SCAG has also been translated into French, German, Spanish. Mandarin in process.

Conclusions: The SCAG is a reliable teaching, learning and assessment tool for teaching adolescent interviewing skills and can be scored by both trained and untrained adolescents. A cost effective, formative assessment can be obtained on learners with no extra faculty time.

Take-home messages: A reliable teaching and assessment tool for adolescent interviewing that can be used across a variety of settings, learners and languages.

7GG/4
Concept of veterinary training in a clinical skills lab

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Jan P Ehlers (University of Veterinary Medicine Hannover, Foundation, Competence Centre for e-Learning, Didactics and Educational Research in Veterinary Medicine, Hannover)

Background: In Germany, veterinary curricula focus on imparting knowledge, whereas practical competence-based education is mainly performed during the last practical year. Hence, veterinary studies conflict between academic literacy and practical preparation for profession. In 2012 the first German veterinary clinical skills lab (CSL) was set up by funding of the Federal Ministry of Education and Research.

Summary of work: Aim of this concept is to establish a dynamic and interdisciplinary guideline for training skills at the CSL. Therefore, we developed a 3-step-concept of training veterinary skills to provide an opportunity for students to train skills in context with the curriculum to foster practical competence.

Summary of results: Essential competences were classified and embedded in the concept by the following steps: general skills, specific skills, and professional skills. Overall, each of the three steps contains a selection of "Day one" skills according to the requirements of the clinical departments and the European Association of Establishments for Veterinary Education. All skills were adjusted for the respective study year.

Conclusions: Different teaching methods have to be implemented in a 3-step-concept to match and enhance the current knowledge/competencies of the students of different study years.

Take-home messages: To implement veterinary skills lab a training concept is at least as important as simulators.

7GG/5
PALS mini-work shop for the last year medical students of Lampang Medical Education Center

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Background: Previously, the final year medical students of Lampang medical education center were taught pediatric advanced life support (PALS) according to AHA guidelines 2010 by a lecture. Some of them were not attentive and sleepy, resulting in ineffectiveness of learning and practice. A new method of PALS teaching was applied.

Summary of work: Two hours and two assistants were used in mini-workshop teaching of PALS. The assistant was a nurse who guaranteed PALS provider achievement. Twenty minutes were used in each section respectively, PALS guideline lecture, three stations of practice (chest compression plus intubation, foreign body aspiration assist and defibrillation), CPR team management and the final 20 minutes for comments, questions and summary. In CPR team management, the students were divided into two groups to join in different simulation of cardiopulmonary resuscitation in which team work was emphasized.

Summary of results: Three groups of medical students, 6 students in each group were taught by the new method. 100% of students were interested and satisfied with the learning. 80% of all divided student group could practice correctly in simulation of cardiopulmonary resuscitation. 100% of students suggested mini-workshop helped them to gain knowledge more than the old method.

Conclusions: PALS mini-workshop teaching improved medical student knowledge of PALS.

Take-home messages: Learning by doing is better than teaching by lecture.

7GG/6

A comprehensive evaluation of the quality and barriers of bedside teaching from professors' point of view

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Sakine Shahsavari Esfahani (Jahrom University of Medical Sciences, Education, Jahrom, Iran)
(Presenter: __Farzane Alipour__, Jahrom University of Medical Sciences, Medical Student, Main Campus, Motahary Street, Jahrom 74148, Iran)

Background: Bedside teaching is a patient-centered teaching method. The aim of this paper is to examine the quality and barriers of bedside teaching from professors' point of view.
Summary of work: We performed a cross sectional study on 60 professors (clinical, nursing and paramedicine) in Jahrom University of Medical Sciences. Data gathering was done using a 3-part questionnaire. Demographic data, qualifying bedside teaching with ten 5-part questions (r=0/83) and surveying the barriers of bedside teaching with 12 questions (r=0/93) were included in the first, second and third parts, respectively.
Summary of results: Results showed that professors evaluated the quality of bedside teaching to be higher in three aspects: developing communicative skills 4/50 (0/54), standard physical examination 4/44 (0/53) and improving professional skills 4/44 (0/66). The most important barrier of using this method was reported to be shortage of time, teachers' lack of skills in applying techniques, and students' lack of knowledge about this approach.
Conclusions: According to results, professors evaluated the quality of this method as medium to high. It seems that there is still a large gap to reach the standard use of this method. So, offering appropriate education to professors in order to provide the situation for optimum use of this method, improving health and actual implementation of medical dominance seems to be necessary.

7GG/7

Overall Performance of the Clinical-Year Medical Students in Department of Medicine, Khon Kaen University (KKU): correlation between theory and clinical skill

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Anupol Panitchote (Khon Kaen University, Deaprtment of Medicine, Khon Kaen, Thailand)

Background: To evaluated clinical-year (the 4th, 5th, and the 6th year) medical students' summative evaluation performance and study the correlation between theory and clinical skill.

Summary of work: We retrospectively studied our students' theory and clinical skill performance (MPL=60%) in 2012 to focus on parts that students failed and made a correlation between theory and clinical skill evaluation using Pearson's correlation coefficient and Spearman's rank correlation coefficient.
Summary of results: The number of students who failed theory and clinical skill were 14 (5%) and 45 of 280 (16.1%), 20 (7.2%) and 7 of 277 (2.5%), and 21 (7.4%) and 17 of 285 (6.0%) for the 4th, 5th, and 6th year students respectively. The mean ± SD of theory and clinical skill were 70.6 ± 6.7% and 65.5 ± 7.7%, 67.9 ± 6.0% and 72.1 ± 6.1%, and 70.6 ± 8.0% and 69.5 ± 6.0% for the 4th, 5th, and 6th year students respectively. We found statistically significant correlation between theory and clinical skill performance among the 4th and 5th year students (Pearson's correlation coefficient were 0.41 [p < 0.001] and 0.53 [p< 0.001] respectively), but the correlation was poor among the 6th year students (Spearman's rho = 0.29, p < 0.001).
Conclusions: The students' performance that need to be improved are clinical skill for 4th year students, theory for 5th year students, and both theory and clinical skill for the 6th year students. The correlation between theory and clinical skill is modest for the 4th and 5th year students but is poor for the 6th year students.
Take-home messages: We should consider students' learning experience and evaluation process in order to improve our students' summative evaluation performance.

7GG/8

How does shame affect acquisition of manual skills?

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Background: Acquiring intimate examination skills as well as continuously conducting those examinations is often described as embarrassing for medical students. However, effects of embarrassment on learning are not well understood.
Summary of work: 49 students were first taught how to examine a female breast, trained in examination at an isolated silicone model (first training) and documented their findings. Afterwards, students were randomised to either train at a life-size mannequin (MQ-group) or the natural breasts of a standardized patient (SP-group). 48 hours after this second training, students performed a breast examination on a SP with strap-on silicone breasts and documented their findings. Two blinded

experts rated communication and manual performance with previously validated check lists independently. TOSCA 3 was used to measure students' proneness to embarrassment along with other known confounders before the study, ESS was used to measure "current embarrassment" at four points of time. A p-value smaller 0.05 was used to determine significance.
Summary of results: Groups do not differ in measured confounders. During second training, MQ-students experienced significantly lower current embarrassment than SP-students. MQ-students showed a significant increase in state embarrassment from training to examination, while SP-students showed a significant embarrassment-decrease. SP-Students performed significantly better than students from MQ.
Conclusions: Teaching format directly affects current embarrassment and manual skills acquisition. Whether there is an effect of embarrassment on learning results from stress remains open.
Take-home messages: Embarrassment affects acquisition of manual skills. Different teaching formats may be employed to alter embarrassment during skills acquisition.

7GG/9
"Hunt of signs": a new tool to develop clinical observation among medical students

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Background: In the world of technology and fast decisions, doctors tend to give less importance to the physical examination and to rely much more on laboratory findings and subsidiary exams. In this scenario, we developed a new tool to incite clinical observation among medical students.
Summary of work: At the beginning of their clinical rotation, students are encouraged to observe and document every significant clinical sign they find during their rotation. After patient´s consent, every sign noted by the students is registered with photos, films or sound clips, using any available tools, such as cell phones or hand cameras. During the rotation, the students prepare a portfolio describing every sign they found during their rotation. This is an open activity and students are free to send as much information as they want. The portfolios are shared and discussed among the students at the end of the process.
Summary of results: Documents sent by the students range from 6 to 46 clinical signs found during their 2-month rotations. Students are committed to this open

activity and showed great interest in producing information.
Conclusions: Using this ludic tool, students demonstrate more interest in clinical examination, "hunting" for different and rare clinical signs to share among their colleagues. For the 21th century doctor, physical examination is still one of the most important tools in medical practice, despite of modern technology.
Take-home messages: The development of tools to incite our medical students in the art of observation must be stimulated and improved.

7GG/10
Full written clinical clerkings (medical histories): what can we learn from them? A pilot study

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Background: Most patients admitted to an acute care hospital are still "admitted" by the Junior Medical Staff by doing a clinical clerking (full history, full examination, provisional and differential diagnoses and management plan and problem list). We request our students, in their 1st full clinical year, to do and submit one of these each week in their clinical rotations in medical and surgery. Each is reviewed by a clinical member of Faculty.
Summary of work: A scoring sheet has been developed. Free text feedback has been collected. A review of exam results versus submitted clerkings is underway.
Summary of results: Free text feedback shows that students see benefit in submitting work.
Conclusions: Encouraging students to perform and practice this important element of the Junior Doctor's role is educational for the student and a strong indicator of the student's increasing clinical maturation over time.
Take-home messages: This is a useful activity at less than 5 minutes Faculty staff time per student.

7GG/11
Heterogeneity of medical student experiences during clinical attachments

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David Bowrey (Leicester Royal Infirmary, Department of Surgery, Leicester, United Kingdom)

Background: The day-to-day education of medical students is delivered by large numbers of personnel. The impact on student learning experiences remains unclear.
Summary of work: Students participating in the study self-completed a 5-day diary during a Perioperative Care attachment. They recorded each learning encounter noting the duration, setting, details about the supervisor and perceived educational value.
Summary of results: 35 students returned diaries between February and May 2012. Students spent a mean of 15 hours per week (range 0-37) in operating

theatres, 14 hours (range 0-29) on wards and 3 hours (range 0 - 10) in outpatient clinics. The perceived educational value was rated as good or very good with the following frequencies: theatre 86%, wards 84% and clinics 92%. Multi-disciplinary team meetings received the lowest ranking (61% good or very good), although minimal time was spent in this setting (mean 1 hour, range 0-5). The majority of education was consultant led (mean 23 hours, range 10-38). The remainder was delivered by specialist registrars (mean 4 hours, range 0-21), other junior doctors (mean 3 hours, range 0-12) and allied healthcare professionals (mean 1 hour, range 0-6). Students were unsupervised for a mean of 3 hours (range 0 - 13). All grades of supervisors received ratings of good or very good over 80% of the time.

Conclusions: There was significant heterogeneity in experiences during a Perioperative Care attachment. However, students did not report major differences in perceived educational value between different learning encounters.

Take-home messages: Heterogeneity of medical student experiences during a clinical attachment does not appear to impact on education.

7GG/12

Using summer school design to approach the integrated curriculum: teaching and assessing practical skills

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Valentin Muntean (University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca, Curriculum Office, Cluj-Napoca, Romania)

Background: Implementation of an integrated curriculum for training in advanced clinical skills represents an unmet need in most Romanian medical universities.

Summary of work: Our aim was to design an integrated curriculum module using a summer school design as field-testing with both students and lecturers involved regarding any improvement in teaching and assessing clinical skills. The summer school was national and 52 students and 15 teachers from 5 Romanian medical universities attended. 12 preclinical (anatomy, physiology, pathophysiology, histopathology, pharmacology) and clinical experts (clinical cardiology, heart and vascular surgery) co-operated in order to integrate the practical skills training into the pre-existing cardiovascular medical curriculum. The chosen lectures were: thoracic pain, heart murmurs, palpitations, headache and dyspnea.

Summary of results: The experts came from an H-type curriculum background. The summer school preparation experts' team work evolved from isolation to sharing and correlation. The integrated curriculum program included lectures, case reports, workshops: EKG, heart ultrasound, anatomy, histopathology and one simulation session of heart murmurs. Both students and lecturers considered the experience worth repeating. The simulation session was the most popular and 62.3% of the students would have preferred more practical sessions. The workshops and case reports were more popular than lectures. 88.7% of the involved experts would change their way of teaching after the summer school experience.

Conclusions: The experts' role was crucial in structuring the summer school integrated curriculum design. Introducing an interdisciplinary training and a corresponding practical skills development in a medical curriculum is feasible.

SESSION 8: Simultaneous Sessions
Tuesday 27 August: 1400-1530

8A Symposium: AMEE PGME Committee: Best Practices & Challenges in Postgraduate Medical Education: A Global View
Location: Congress, Hall, PCC

Linda S Snell (*McGill University, Canada*)
Richard Doherty (*Royal Australian College of Physicians, Australia*)
Jason Frank (*Royal College of Physicians & Surgeons of Canada*)
Jonas Nordquist (*Karolinska Institute, Sweden*)

Change is coming to PGME. Around the world postgraduate medical education is entering a period of rapid reform and globalization. What are the key issues facing postgraduate systems right now? What are considered current best practices? What are the emerging directions for PGME? This dynamic panel session will provide insights from a diversity of PGME systems around the world, debate challenges and their solutions, and discuss directions with members of the audience. Participants will leave with insights that they can readily bring home to their own institutions.

8B Symposium: Selection methods in medical school: Where are we now and where are we heading?
Location: Meeting Hall I, PCC

Susanna M Lucieer (*Erasmus MC Desiderius School, Rotterdam, the Netherlands*)
Anouk Wouters (*VUmc, Amsterdam, the Netherlands*)
Geoff Norman (*McMaster, Canada*)
Fiona Patterson (*City University, London, UK*)
Axel PN Themmen (*Erasmus MC, Rotterdam, the Netherlands*)
Gerda Croiset (*VUmc, instuut voor onderwijs en opleiden, Amsterdam, the Netherlands*)

Medical schools have the task to train medical students to become well-performing doctors who will provide the excellent care that society expects. Since medical education is expensive and the available places in medical school are limited, medical schools aim to select those students who will be able to successfully complete the programme, and will become excellent care providers. But how can we select those excellent students and future health care providers? An overview of the contemporary state of the art and promising research to improve selection methods will be provided.

8C Symposium: XI Ibero-American Session: Health and Medical Education Systems in the Americas and the Iberian Peninsula: A leadership discussion
Location: Panorama, PCC

Pablo Pulido
Emmanuel Cassimatis
Julio Frenk
Alberto Oriol i Bosch

This discussion group session provides an overview and some examples of the current situation of the emerging health systems and medical education efforts and needed systems to meet the challenges in the Americas and the Iberian Peninsula. Particular attention is focused on efforts to enhance not only the quality of medical education itself through traditional means like accreditation and certification, but through the development of innovative working models and tools for quality improvement, including professionalism, meeting patient and social needs such as safety and satisfaction, along with medical students, faculty Institutions and the community. Aim also could include discussion models of the competencies and attributes of physicians, mostly working in primary care delivery services. Conclusions should orient and align action agendas in the countries and the region to produce significant systems approach to harmonize improvements of health care delivery through systems of medical education.

The aim of this session is to address relevant and needed changes and decision making towards:

1. An efficient – productive organization and functional structure of quality Health Services
2. A focused review of systems to develop the needed Health Manpower, to improve education at needed levels, strategically related to Primary Health Care Services
3. Further coverage and access to health services, providing financially feasible solutions
4. Intelligent application of Information technologies to develop a harmonized Continuing Professional Education and Development program meeting population and physicians needs, a long lasting education based on a core curriculum.
5. Enhancement of non-clinical skills and disciplines to advance the above i.e. managerial skills, ethics, informatics and most importantly patient-physician interactions.
6. Satisfaction of both Communities and Physicians and Health care manpower.

8D PhD Reports 2
Location: Meeting Hall IV, PCC

8D/1
Mind the gap; the transition to hospital consultant

Michiel Westerman (VU Medical Centre, Department of Medical Education, Sassenheimstraat 78-3, Amsterdam 1059BM, Netherlands)

Introduction: The aim was to investigate and clarify the processes situated within the transition to hospital consultant in order to achieve a deeper understanding of this intricate stage within the medical career. Three specific research questions were: (1) what factors in the transition to hospital consultant do doctors perceive as salient? (2) What is the influence of preparation received through specialty training on the progression and outcome of the transition to hospital consultant? (3) What influential contextual and psychological factors can be identified within the transition to hospital consultant?
Methods: A literature review together with two exploratory qualitative studies, one cross sectional and one longitudinal, were performed. Furthermore, two population based survey based research projects were conducted in The Netherlands and Denmark.
Results: New consultants perceive themselves adequately prepared for the medical and clinical aspects of their work, like mastery of clinical knowledge and skills. However, they report being unprepared for the generic competencies such as supervision skills, leadership, management, and handling financial issues. Received progressive independence during training was found to be essential for a smooth transition. Ten percent of the new consultants met the criteria for burnout and 18% scored high on the emotional exhaustion subscale. Finally, the results illustrate how the transition is characterised by an intricate interplay between preparation received through training, psychological characteristics such as coping strategies and feedback seeking behaviour, and contextual factors.
Discussion and Conclusion: The triangulation of the results and the varying theoretical perspectives on transitions results in a different perspective on the transition to hospital consultant and transitions in general. This perspective postulates transitions not as threats, but as opportunities for rapid personal and professional development. This approach contrasts with medical education's most prevalent view on transitions as threats that should be prevented through curriculum alterations. The latter perspective builds on the view that transitions result from inadequate preparation, and thereby ignores the psychological and contextual characteristics of transitions.
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8D/2
The association between medical education accreditation and examination performance of internationally educated physicians seeking certification in the United States

Marta van Zanten (FAIMER, Research and Data Resources, 3624 Market Street, Philadelphia 19104, United States)

Introduction: The purpose of the first phase of this study was to examine medical education accreditation practices around the world, with special focus on the Caribbean region, to determine the association of accreditation of medical schools with student/graduate performance on examinations. The aim of the second phase of this research was to evaluate the quality of accrediting agencies and the association of the inclusion of specific protocols with outcomes.
Methods: Graduates of international medical schools (IMGs) seeking to enter postgraduate training positions in the United States must pass the United States Medical Licensing Examination (USMLE) Step 1 (basic science), Step 2 Clinical Knowledge (CK), and Step 2 Clinical Skills (CS). In phase one, examination first-attempt pass rates were compared for all IMGs who took one or more examinations from 2006 through 2010 by presence of a national system of accreditation in the countries of the physicians' medical schools. In phase two, the quality of a select group of accrediting agencies was evaluated according to criteria determined by a panel of experts to be the most salient features of an accreditation system. The association between accreditation systems' inclusion of the selected criteria and student performance was investigated.
Results: During the study period approximately 70,000 individuals took one or more examinations, and over one quarter of the physicians were from schools located in the Caribbean. For the Caribbean population, after controlling for personal variables, the odds of passing Step 1 on the first attempt for those individuals from accredited schools were 4.9 times greater as compared to the odds of passing the examination for individuals from non-accredited schools. There was no association between accreditation and performance for the non-Caribbean group. Results were similar for Step 2 CK. For Step 2 CS, after controlling for personal variables, the

odds of passing the examination on the first attempt for those individuals from accredited schools were 2.4 times greater for the Caribbean group, and 1.1 times greater for the non-Caribbean group, compared to individuals from non-accredited schools. In phase two, the expert panel unanimously agreed on 14 essential standards that should be required by accrediting agencies to ensure the quality of physicians. Certain essential standards were associated with better performance for all three examinations.

Discussion and Conclusion: The association between medical education accreditation and student/graduate performance is positive in certain regions and for some outcomes. Because substantial resources are needed to successfully implement oversight processes, these results provide some positive evidence that accreditation of educational programs, and certain elements within systems, are associated with the production of more highly skilled physicians.

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8D/3
Becoming a doctor: the early emotional and professional development of medical students

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Introduction: How and why may early clinical experience enhance the emotional and professional development of medical students?
Methods: We used a mixed-methods design with a predominance of qualitative methodologies, including content analysis, phenomenology and grounded theory. As learning within clinical practice necessarily takes place in interaction with patients, doctors and nurses on wards, we approached learning during early clinical experience from a predominantly socio-cultural perspective, conceptualising meaning and identity as negotiated and constructed through interaction with other individuals while participating in communities of practice.
Results: During their first clinical placements, medical students had many powerful experiences, leading to a broad variety of positive and negative emotions. Developing a professional identity was a highly emotional process in itself, involving issues such as identification, self-categorisation and getting access to a new and unknown community. Tensions along four

dimensions (idealism versus reality, critical distance versus adaptation, involvement versus detachment, and feeling versus displaying) gave rise to strong emotions. Many conditions influenced students' emotional learning, such as their personal attributes and social relationships with others from inside (patients, nurses, doctors, peers, clinical preceptors, medical school teachers) and outside (family, friends) the medical community. This process resulted in more or less favourable learning outcomes, depending on the positions students took on the different dimensions.

Discussion and Conclusion: Becoming a doctor is a highly emotional process. Students need to learn how to deal with and feel strengthened by these emotions. As neither students nor supervisors can accurately predict what students will face during their first introduction into medical practice, it seems necessary to help them find ways of reflecting on this experiential and unplanned learning. Supervisors should help students to be sensitive to their emotions, offer concrete support, stimulate critical reflection, offer space to explore different meanings, and suggest alternative interpretations. The subject of the thesis – the interrelatedness of emotions and professional identity development in the context of early clinical experiences – is strongly embedded within current medical education research. There is a shared common reliance on qualitative methodologies.

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8D/4
Defining and Teaching Veterinary Professionalism

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Introduction: Three questions were addressed: (1) What is veterinary professionalism? (2) How is the hidden curriculum influencing students' development at one veterinary school? (3) How should a curriculum of veterinary professionalism be structured?

Methods: The lack of empirical knowledge about veterinary professionalism means a constructivist grounded theory can be developed (Charmaz 2006). An iterative approach, using interviews and focus groups, collected information from stakeholders including veterinary surgeons and nurses, professional bodies and clients. Sampling was theoretical. Data analysis was managed in NVIVO® and sampling concluded when theoretical saturation had been reached. A concurrent analysis of the hidden curriculum of one veterinary school was also undertaken using a cultural web model to perform a thematic analysis of staff and student focus group narratives. The outcomes from both studies were combined to develop a curriculum of veterinary professionalism.

Results: The normative definition of veterinary professionalism produced places balance as the central component. Veterinarians are constantly managing the requirements and expectations of their clients, the animals under their care, society and their employer. The ability to balance these demands and therefore demonstrate professionalism is helped by attributes which are: efficiency, technical competence, honesty, altruism, communication skills, personal values, autonomy, decision making, manners, empathy, confidence and acknowledgement of limitations. The hidden curriculum analysis established a central paradigm of a hard-working and friendly community. Both positive and negative role models were readily identified, as was the contribution of routines and rituals. The curriculum of veterinary professionalism is an integrated, spiral structure involving early clinical experience and critical event analysis to guide student reflections and shape their development as professionals. Four core professional skills of communication, ethical reasoning, reflective practice and learning skills are used to reinforce the values and behaviours included in the definition of professionalism.

Discussion and Conclusion: The definition includes attributes described in several definitions of medical professionalism. However the central behaviour of balancing responsibilities between clients, animals, the practice and society appears to be uniquely positioned. This component of professionalism is interesting for UK medical professionals to consider as NHS structures change, putting pressure on different priorities. Implementation of the proposed curriculum will require effective clinical leadership and strong institutional support. A post-positivistic, qualitative study of this nature has limitations, but the need to gain an in depth understanding of the topic alleviates these concerns.

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8E Research Papers: Research in Medical Education

Location: Meeting Hall V, PCC

8E/1
Immediate reflection on clinical performance is more valued than delayed reflection on competency development

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Introduction: Health professionals need to be able to engage in continuous competency development throughout their career. Competency development relies on a continuous reflective process, built on two cognitive processes that differ in timing and focus: immediate reflection on performance and delayed reflection on competency development. We aimed to compare students' perceptions of the learning value and the perceived effect of the two reflection activities. Our main research questions were:
1. What is the perceived learning value of reflective writing immediately after performance versus delayed reflective writing on progress in competency development, and which approach is most valued by learners and recent graduates?
2. What is the perceived effect of the two reflective writing activities on learning?
Methods: 142 respondents (students and recent graduates) completed a questionnaire with closed-ended and open-ended questions about their perceptions of the two reflective activities. Quantitative and qualitative data were triangulated to identify core findings.
Results: Immediate reflection on performance was valued above delayed reflection on competency development. A positive effect of delayed reflection on learning was perceived only (retrospectively) by the graduates. The other year groups were much less appreciative of delayed reflective writing. Immediate reflection on performance was perceived by all groups to promote learning, because it facilitated moment-by-moment improvement and a two-way feedback process. Delayed reflection seemed more helpful to facilitate an overall self-assessment, self-confidence and continuous practice improvement. The following suggestions were made to enhance the learning effect of both reflective writing activities: limitation of immediate reflection as a function of challenging learning experiences and limitation of delayed reflection at longer time intervals, limitation of the number of competencies and more time for observation, reflection, feedback and a progress dialogue.
Discussion and Conclusion: Although all respondents prefer reflection on performance, adding a reflective writing activity, focusing on progress might facilitate immediate and optimal improvement during the current internship as well as promoting longitudinal competency development across internships.
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8E/2
How Theory and Causal Assumptions can Guide Data Analysis and Inference in Medical Education Research

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Introduction: Researchers often have to make causal assumptions in the process of analyzing data, interpreting results and reaching conclusions. In some areas of medical education research, the evidence supporting these causal assumptions is scarce because of the small number of relevant empirical studies conducted in the specific area. Therefore, it often remains unclear why certain assumptions are made and what effect these assumptions have had on the research findings (Groenwold et al., 2008). This study explored the implications of causal assumptions for medical education research, illustrated by a case study about the influence of faculty's teaching performance on their role modeling behavior (Boerebach et al., 2012).
Methods: We used the formal language and diagrams from the modern Structural Causal Model (Pearl, 2009) to guide and interpret data re-analysis of a previously published study about the influence of faculty's teaching performance on their role modeling behaviors as teacher-supervisor, physician and person (Boerebach et al., 2012). To illustrate the hypothetical causal relationships between faculty's teaching performance and their role modeling behaviors (as teacher-

supervisor, physician and person), all plausible causal diagrams were drawn (Greenland et al., 1999). Subsequently, these causal diagrams were translated into corresponding statistical models and multilevel analyses were performed to estimate the different effects (expressed as odds ratios) for each relationship between faculty's teaching performance and their role modeling behaviors.

Results: Overall, four different statistical models for each outcome variable as (role modeling behaviors as teacher-supervisor, physician and person) emerged. The results of these different statistical models showed major differences in the magnitude of the relationship between faculty's teaching performance and their role modeling behaviors. The odds ratios for relating teaching performance to the three role model typologies for the different statistical models ranged from 31.1 to 73.6 for the teacher-supervisor role, from 3.7 to 15.5 for the physician role and from 2.8 to 13.8 for the person role.

Discussion and Conclusion: As we found in this nuanced re-analysis, moving from associations to inferring effects using non-experimental data requires (some untestable) causal assumptions about the interrelationships between key study variables. The causal assumptions guided choice of variable adjustment, model choice, and interpretation of the possibly different effect estimates. Since different causal or relational assumptions can lead to different analytical models, results interpretation, and practice implications in non-experimental medical education research, it is important that authors be transparent to their readership about their causal assumptions and subsequent results interpretation given those assumptions.

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8E/3
Score Gains for Repeat International Medical Graduates on a Performance-Based United States Medical Licensure Examination

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Mark Raymond (National Board of Medical Examiners, Test Development, Philadelphia, United States)

Introduction: The literature on repeater performance on performance-based standardized patient exams has reported score gains both across initial and repeat testing sessions, indicating a remediation or learning effect, and over multiple encounters within a single exam session, indicating a warm-up or practice effect.1-3 One recent study that analyzed the communications (CIS), data gathering (DG), and patient note (PN) scores for United States (US) medical students who failed and repeated the United States Medical Licensure® (USMLE®) Step 2 Clinical Skills (CS) found that within-session score gains were present on each component and attributable to a pattern of score increases over the first few encounters for both first and second attempts, indicating a practice effect within session for both takes.4 A significant between-session score gain was found as well for each component that was not attributable to the practice effect, indicating a true improvement in performance between takes. The current paper extends the previous analyses to international medical graduates (IMGs) repeating the exam during the same time period. The specific research question was, do IMGs show the same pattern of between-session and within-session scores gains as USMGs, and if not, what do the patterns indicate for IMGs as far as both practice and remediation effects?

Methods: The data included encounter-level scores for 12,394 international (non-US or Canadian) medical students and graduates (IMGs) who took Step 2 Clinical Skills twice between April 1, 2005 and December 31, 2010. This group includes examinees who report a language other than English as their first language. To test specific hypotheses about the within-session score gains, we modeled score patterns using smoothing and regression and applied statistical tests to determine whether the patterns were the same or different across attempts. In addition, we tested whether any between-session score increase could be explained by the first attempt within-session score trajectory. These within-session and between-session results were compared to the previous study that used USMG subjects for the CIS, DG, and PN components.

Results: Within-session score gains were observed on the CIS, DG, and PN components; these were attributable to a pattern of score increases over the first 3-6 encounters, followed by a subsequent leveling off, for both the first and second attempts. The gains were similar to those observed for USMGs in previous research.4 Hypothesis tests based on model predictions revealed that the between-session score gains, while significant, were small in size compared to the gains seen for USMGs in the previous study.

Discussion and Conclusion: Within-session score patterns reflect a temporary "warm-up" effect that disappears within 3-6 encounters but "resets" between testing attempts. Between-session gains are significant but not meaningful in size, perhaps indicating a lack of effective remediation between exam attempts for IMGs in general. Further implications of the findings,

especially with respect to the validity of inferences made on repeat administrations of Step 2 CS for IMGs, will be discussed in the full presentation.

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8E/4

Thinking like an Expert: Implications of a Theoretical Model of Intraoperative Decision-Making for Surgical Education

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Introduction: Currently, expertise research is grappling with the question of how experts adapt to novel challenges. Worldwide, researchers who study the practices of high-stakes professionals are learning how to better train for flexibility and innovation in the face of uncertainty. The present study seeks to further this understanding in the context of surgical education by exploring the challenges surgical experts encounter and the processes by which they assess and respond to challenges. Our purpose was to produce a theoretical model that can support further research and curriculum development for fostering surgeons' adaptive expertise.

Methods: The study used an ethnographic methodology consisting of approximately 150 hours of non-participant observation and 32 semi-structured interviews immediately following 32 surgical cases. The cases, drawn from seven staff surgeons from a variety of surgical specialties, were purposively sampled after being pre-identified as "likely to include challenges" by the operating surgeon. We used constructivist grounded theory methodology with a two-stage analytical process. From the first analytical phase, a grounded theory of intraoperative decision-making emerged and the various elements of the model were identified. The second phase aimed to refine the description of the cycle and to consider how existing theoretical frameworks might further inform the interpretation of the data, as suggested by the tenets of grounded theory.

Results: The grounded theory developed during the first analytic phase consisted of three elements: Assessing the Situation, Reconciliation Cycle and Implementing the Planned Course of Action and two points of transition during which the surgeons continue to act, although they may change the course of their action. The Reconciliation Cycle was identified as the main element in the model. During the second analytical phase, the Reconciliation Cycle was further elucidated as a continuous, iterative process of gaining information and transforming the information encountered during the course of the case. It was found that experts transform information by comparing it against what is expected or typical and/or against the planned course of action to obtain 'new meaning' that is useful for solving the situation.

Discussion and Conclusion: The theoretical model developed in this study is the first step toward developing a language that captures recurring features of situation awareness and decision-making strategies in the surgical context. The Reconciliation Cycle is characterized as a dynamic and intertwined cognitive process in which reflection plays an important role in the way information is interpreted with a 'new meaning' by the surgeons. This characterization may serve as an overarching framework to further investigate the difference between how expert and non-expert surgeons create and implement strategies to cope with difficult and unexpected events. This study has produced a theoretical description of experts' cognitive strategies as they decode emergent challenges. While further research is required to elaborate and test the explanatory power of the language provided by this theoretical model, these insights will support the development of curricula to train for adaptive expertise in surgery.

8F Short Communications: Assessment: Work-based
Location: Chamber Hall, PCC

8F/1
A tale of two cities: a comparison of the Mini-CEX in primary care in two universities

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Deirdre Bennett (University College Cork, Medical Education, Cork, Ireland)
Caroline Sprake (University of Newcastle, Primary Care, Newcastle, United Kingdom)

Background: Workplace based assessment is increasingly common. Little is known about its implementation in primary care. Two universities; University College Cork, Ireland and the University of Newcastle, United Kingdom use the mini-clinical examination (Mini-CEX) in primary care to assess and give feedback to undergraduate medical students.
Summary of work: To compare and contrast our experience using Mini-CEX. Both universities used the same form for assessment (derived from Foundation year training) and similar information was given to family physicians participating. Primary care mini-CEX assessments in both settings for the academic year 2010-2011 (UCC n=108, Newcastle n=178) were analysed to compare type of cases used for assessment; duration of mini-CEX and satisfaction with the assessment to students and family physicians.
Summary of results: A wide variety of case histories and examinations were used in both settings; the respiratory system was the commonest system examined. The duration of the assessment (mean 20 minutes) was acceptable to busy primary care physicians and students. Detailed feedback (mean time 12 minutes) was given to students. Both students and assessors report satisfaction with this type of assessment in both contexts. However, a number of differences exist in both contexts in terms of student and assessors expectations of the function of assessment.
Conclusions: International collaboration facilitated scrutiny of local application procedures to enhance reliability of the use of this format of assessment e.g. examiner training. This information will be used to help inform benchmarking and standardisation processes for this type of assessment in primary care.
Take-home messages: Use of Mini-CEX is feasible within primary care.

8F/2
Collaborating for success: International assessment and benchmarking of students' workplace performance

Sue McAllister (Flinders University, Speech Pathology, GPO Box 2100, Adelaide 5001, Australia)

Background: Collaborative development of assessment of workplace performance is important to ensure relevance, utility and engagement by all stakeholders.
Summary of work: Speech pathology educators in Australia and New Zealand have continuously collaborated since 2001 to: 1. Develop a valid competency based assessment of students' performance in the workplace. 2. Embed the assessment tool into educational programs to support the unique learning and assessment structure of each program. 3. Develop a non-competitive strategy for cross-institutional benchmarking of student performance as an outcome measure to inform curriculum development.
Summary of results: 1. COMPASS® Online performance assessment validated and embedded into all speech pathology programs in Australia and New Zealand, and trialling in Malaysia, Hong Kong and Singapore. 2. Strategies for secure and collaborative cross-institutional benchmarking for curriculum improvement established. 3. Ongoing annual Asia-Pacific forums for sharing of and collaboration on curriculum evaluation and innovation.
Conclusions: The COMPASS® projects represent a highly collaborative and effective international process of performance assessment and curriculum development across a health profession. Consequently a shared understanding and language regarding the nature and process of developing competency by students, clinical and university educators and accreditors now exists across the profession.
Take-home messages: An international non-competitive approach to valid assessment and benchmarking of student performance in the workplace was achieved and yielded greater advantages than initially anticipated.

8F/3
Anaesthesia training – trainees in the driving seat

Olly Jones (Australian and New Zealand College of Anaesthetists, Education, 630 St Kilda Road, Melbourne 3004, Australia)
Jodie Atkin (Independent Medical Education and Training Consultant, Sydney, Australia)

Background: The Australian and New Zealand College of Anaesthetists (ANZCA) launched a revised curriculum in 2013. The introduction of seven ANZCA Clinical Fundamentals defines fundamental anaesthesia knowledge and skill. Professional attributes required of anaesthetists in contemporary practice are nurtured through the ANZCA Roles in Practice. Workplace-based assessments guide trainees through the curriculum.
Summary of work: The implementation of the curriculum affected 531 trainees. Workplace-based assessment (WBA) tools provide an improved structure for teaching, critical thinking and rich feedback for the clinical fundamentals and the ANZCA Roles in Practice. The College developed an online mobile-compatible Training Portfolio System (TPS) which drives trainee learning through key milestones.

Summary of results: 77 WBA workshops were delivered before the curriculum launch and 648 assessors and 67% of supervisors of training were trained. 66% of trainees had interacted with the TPS in the first 2 months. Trainee focus groups confirmed a higher quality experience. WBAs conducted in the first 2 months are providing far more standardized, structured feedback and guidance and the tool introduction is positive.

Conclusions: WBAs and the TPS have been instrumental in the introduction of the revised curriculum. Trainees can explore the curriculum, consider unique opportunities for their learning and highlight their learning needs. Trainees are in the driver's seat and the TPS provides supervisors with a vehicle to proactively monitor trainee progression.

Take-home messages: A revised curriculum, supported by a range of tightly aligned formative assessments and an online training portfolio drives teaching, regular feedback and learning.

8F/4
What is the best way to use clinical supervisors' assessment?

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Vicki Langendyk (University of Western Sydney, School of Medicine, Sydney, Australia)

Background: Clinical attachment supervisors are essential members of the teaching faculty, but are diverse and varied in their approach to assessment of students attached to their clinical team. It is difficult to standardize their marking of student performance in clinical attachments.

Summary of work: We reviewed the clinical attachment assessment (CAA) marks awarded by supervisors in 1156 episodes of hospital-based attachments for 256 students in their first clinical year of an undergraduate medical program. We compared these marks with the student's performance in written and OSCE examinations in the same year.

Summary of results: Clinical supervisors were very generous with marks and demonstrated poor discrimination between high and low-scoring students in written assessments. The median CAA score was 80%, with a very narrow range of scores (sd=6), and no students received a failing CAA grade. The written examination median score was 63%, (sd=9, minimum 41%, 13 scores below 50%). There was a very poor correlation between CAA scores and the written examination result (r=0.31). However, clinical supervisors were readily able to recommend failure based on criteria of professional conduct or attendance. Students also find their informal feedback useful.

Conclusions: Clinical supervisors are good at recognizing poor professionalism or attendance, but are otherwise uniformly generous with assessment marks. CAA marks are poor discriminators of overall student performance. Supervisor's assessments are more appropriate to formative feedback, plus hurdle requirements on professionalism and attendance.

Take-home messages: Clinical Supervisor's assessments should not be used as summative assessments. However they are useful for formative feedback and detection of poor professional standards.

8G Short Communications: Curriculum Evaluation
Location: Conference Hall, PCC

8G/1
Beyond course evaluation: Concept-development of an ongoing theory based competency and curriculum evaluation

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Barbara Schober (University of Vienna, Faculty of Psychology - Educational Psychology and Evaluation, Vienna, Austria)
Christiane Spiel (University of Vienna, Faculty of Psychology - Educational Psychology and Evaluation, Vienna, Austria)

Background: The systematic evaluation of student competencies and of curricula is rarely implemented. However, this would enhance teaching quality and consequently the student competencies sustainable. Hence, in a pilot study the veterinary medicine universities of the German speaking countries decided to conduct a pilot study to develop, implement and evaluate a theory based concept for ongoing competency- and curriculum evaluation.
Summary of work: A two-step procedure was applied: (1) Defining the theoretical framework for the concept based on the respective literature, and (2) identifying the evaluation goals of the Veterinary Medicine University Vienna.
Summary of results: The procedure resulted in an evaluation-concept of competencies and the curriculum which includes (a) an ideal and a real perspective, i.e. what and how students should learn and what and how they do learn, (b) student perspective and lecturer/instructor perspective, and (c) annual data collection at a crucial phase in the middle as well as at the end of the curriculum.
Conclusions: Evaluation results should inform the rectorship/senate to make evidence-based decisions, the lecturers/instructors to enhance their teaching-quality and the students about their individual competence profile. For realizing the concept at the university and fulfilling the criteria for empowerment and utilization-focused-evaluation, four teams are established and trained by evaluators in a four semester program.
Take-home messages: Competency- and curriculum evaluation should be theory-based, involve the stakeholders from the beginning, and include different perspectives. To conduct an ongoing evaluation evaluators have to build up evaluation-capacity and -culture at the university.

8G/2
Study diaries as sensitive detection instrument and basis for current interventions in the process of curriculum implementation

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Sabine Schmidt (Charité Universitätsmedizin Berlin, Dieter Scheffner Fachzentrum, Berlin, Germany)
Harm Peters (Charité Universitätsmedizin Berlin, Dieter Scheffner Fachzentrum, Berlin)

Background: In 2010, the Charité - Universitätsmedizin Berlin started to implement a new integrated, outcome-based medical curriculum. This process is accompanied by large organizational, conceptual and institutional challenges. There is a need of an instrument which identifies sensitively and immediately problems. Here we used students' perceptions of the new learning environment.
Summary of work: The aim was an in-process qualitative evaluation of the implementation process of the medical curriculum by means of an online-supported, semi-structured study diary which is completed daily, weekly and modularly by a students´ subset of the first study cohort. Data were analyzed using qualitative content analysis according to Mayring. We conducted triangulation with the results of the general evaluation and the debriefing of the modules.
Summary of results: Students' feedback revealed relevant redundancies in lectures and modules, which could be removed immediately for the second module run. Additional feedback related to module structure, organizational and institutional contexts, social climate and feasibility of the work load. In order to solve the problems identified, specific steps were worked out involving short- and medium-term interventions carried out with the target groups involved.
Conclusions: Study diaries can serve as an effective instrument to improve the implementation process of a new curriculum and to provide immediate curricular feedback loops. They deliver differentiated information about the students' perspective of their learning environment created by the new curriculum.
Take-home messages: Student diaries are an effective instrument to facilitate the implementation process of a new medical curriculum.

8G/3
Accountable Curriculum Management

Chris Candler (The University of Oklahoma College of Medicine, Medicine, 940 Stanton L Young Blvd, BMSB 357, Oklahoma City 73104, United States)

Background: The University of Oklahoma College of Medicine curriculum committee recently unfurled a new transparent curriculum management system in which

faculty critically examined their colleagues' courses against shared curriculum performance expectations.

Summary of work: College curriculum governance groups collectively designed a new transparent curriculum management system through the use of collaboratively developed course scorecards, course peer review committees, and educational performance benchmarks.

Summary of results: As a result of the new accountable curriculum management approach, key educational outcomes and student evaluations of courses and instructors were substantially improved. All outcomes and student ratings were measured against predetermined quality benchmarks and compiled into a curriculum scorecard for curriculum committee review.

Conclusions: A faculty-driven approach to transparent curriculum management was used to promote accountability, reinforce what was working well, fix what was broken, and promote confidence faculty members' ability to continually improve the educational program. Educators embraced a new accountable curriculum management system by collaboratively setting performance expectation standards, examining key outcomes, and listening to colleagues' comments and critiques. This information was used to gauge progress toward educational program objectives and as a means to refine and enhance the educational experience.

Take-home messages: Accountable curriculum management requires a faculty commitment to transparency, a shared vision of quality improvement, and a willingness to accept open and constructive criticism from colleagues.

8G/4

What do our learners have to tell us about our program? Using learner feedback about core program competencies in ongoing curriculum review and improvement

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Stephanie Nykamp (University of Guelph, Ontario Veterinary College, Guelph, Canada)
Kerry Lissemore (University of Guelph, Ontario Veterinary College, Guelph, Canada)

Background: Many veterinary schools have implemented alumni and employer surveys as outcomes assessment tools to address the external and internal quality assurance of their DVM Programs. Current efforts to evaluate internal curriculum quality utilize a variety of approaches to evaluate teaching effectiveness and the resulting student performance that occurs in the program. These approaches predominantly include disciplinary-based assessments and skills utilization and performance measures.

Summary of work: This abstract presents an embedded curricular assessment paradigm by which learning experiences can be integrated at a curricula-level in order to enrich the internal quality assurance processes.

We also discuss the importance of students' reflection on their proficiency of core competencies as they progress through the program as an engagement method for ongoing curriculum review and improvement.

Summary of results: Program-level competencies can be deconstructed to develop a framework for curricular review and assessment that includes student feedback.

Conclusions: The relationship between how students perceive themselves as learners and the intended learning objectives of a program can be used for engagement and curricular improvement.

Take-home messages: Student feedback about program competencies provides timely and important information to help maintain quality in veterinary curricula.

8G/5

Evaluating a Medical Curriculum - How best to proceed?

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Andrew Grosset (University of Glasgow, School of Medicine (Student), Glasgow, United Kingdom)
Dr Alastair Gracie (University of Glasgow, School of Medicine, Glasgow, United Kingdom)
Dr Joanne Burke (University of Glasgow, School of Medicine, Glasgow, United Kingdom)

Background: Curriculum Evaluation is becoming increasingly important in developing and maintaining the best educational experiences for students worldwide. This review was conducted in an aim to explore how best to evaluate with respect to a curriculum revision at the University of Glasgow Medical School.

Summary of work: A systematic literature review was carried out using a three-pronged search of; books, databases, and selected journals. Articles were sourced using a standard search query. Initially, a total of 2,119 articles and 20 books were discovered. The articles were further narrowed to 114 using a matrix model derived from De Montfort University (Leicester).

Summary of results: Evaluation is a fundamental part of any curriculum bringing benefits in student learning, satisfaction, course development and reflection. It takes two main forms: Models and Methods. Over time, educationalists have proposed structured models, each with their own merits and pitfalls. Many literature sources regard the "Plan" aspect of any model to be the most important to avoid over collecting of information by establishing first how it will be used. There are many evaluative methods available: questionnaires, interviews, focus groups, assessment, interrupted lectures and observations. No single method of evaluation is uniformly felt to be the best: each varies in terms of resources required, quality of data and implications for change.

Conclusions: Comprehensive course-tailored evaluation is essential for both students and staff. Selection of a model that fits the specific curriculum will provide

structure, supporting identification of the most appropriate methods. Adequate planning and closure of the feedback loop is essential to success.

8H Short Communications: Clinical Reasoning
Location: Club H, PCC

8H/1

How clinical reasoning is taught and learned: Cultural perspectives from the University of Melbourne and the University of Indonesia

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Lesleyanne Hawthorne (Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Medical Education Unit, Melbourne, Australia)
Geoff McColl (Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Medical Education Unit, Melbourne, Australia)
Neville Chiavaroli (Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Medical Education Unit, Melbourne, Australia)

Background: Clinical reasoning (CR) skill is a critical skill for medical graduates. There is growing literature on how CR should be taught and learned in medical education. Little however is known about the possible influence of cultural perspectives in the attitude of teaching and learning CR.
Summary of work: This study explored CR teaching and learning in two undergraduate medical courses (University of Melbourne, UoM, University of Indonesia, UI) using a comparative case study. A total of 11 student focus group discussions (FGD, 4 at UoM and 7 at UI), and 24 medical teacher individual interviews (13 at UoM, and 11 at UI) were completed in this study. A thematic analysis using Hofstede's four areas of culture of learning (Hofstede, 1986) was conducted.
Summary of results: Clear cultural differences in relation to the power distance and uncertainty avoidance were evident in the two institutions. Different attitude in power distance was expressed in relation to content expertise, learning in PBL tutorials and importance of patient collaboration in CR process. Likewise, different perspectives in information thoroughness, knowledge adequacy and the role of pattern recognition in CR related to the uncertainty avoidance aspect were evident.
Conclusions: Attitude in teaching and learning CR can be influenced by different culture of learning.
Take-home messages: Insights to culture of learning may facilitate understanding on how CR is best taught and learned in various contexts of medical education.

8H/2

Introducing case-based clinical reasoning (CBCR) course at the Tbilisi State Medical University

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Background: Evaluation of existing teaching methods at the Tbilisi State Medical University (TSMU) showed that students experience difficulties in clinical decision making during their clinical studies. To develop students' independent thinking ability CBCR course was introduced in the 3rd year of study. The method is developed to train students in applying previously acquired knowledge on patient problems.
Summary of work: Introduction of CBCR is one of the main goals of currently implementing TEMPUS project "Modernizing Undergraduate Medical Education in EU Eastern Neighboring Area". CBCR sessions were designed by guidelines elaborated by Prof. Olle ten Cate at University Medical Center Utrecht (UMCU). Seven professors of TSMU were previously trained in CBCR methodology at UMCU. Trained professors, in turn conducted training in CBCR for 20 clinical professors at TSMU Faculty Development Center. About 10 CBCR clinical cases were designed and properly structured. By the end of each CBCR session feedback was provided by CBCR consultants and students using questionnaires.
Summary of results: 96% of consultants assessed CBCR methodology as useful in improvement students ability to resolve clinical problems. 84% of 3rd year students rated CBCR course as excellent teaching them proper approach to patient's problem and improving their communication and leadership skills.
Conclusions: Integration of CBCR course in the existing TSMU subject-based curriculum might be considered as an important step towards integrated approach as students are applying already acquired knowledge in basic subjects to solve various clinical problems.
Take-home messages: CBCR course is considered to be a useful tool in the improvement of teaching and learning enhancing students' clinical reasoning ability.

8H/3

Further development of the Dual Training Model using real patient encounter in undergraduate medical education in Japan

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Background: The Dual Training Model has been developed and implemented to teach clinical reasoning in undergraduate medical education in our institution since 2010. It is a workplace case-based learning model to train both residents and students simultaneously. Since 2012, this model has been revised to utilize real patient encounter by students for discussion instead of patients seen and presented by residents.

Summary of work: The Dual Training Model provides resident-led, faculty-supervised, live, and interactive situated learning sessions among Year 4 students. A group of three to four students rotate the Department of General Medicine for two weeks. Each group has one Dual Training Model session during the rotation. Residents are given three roles. One is a facilitator, one is a scribe on the white board, and the rest are observers. Faculty plays a role of supervision and facilitation as needed. Students present a patient who was seen by them.

Summary of results: In the revised model, students are required to present a patient seen by them. This gives further challenges in facilitation skills among residents. Residents are required to analyze limited or insufficient patient information by the students, and to adjust their facilitation to students' prior knowledge and their responses.

Conclusions: The Dual Training Model using real patient encounter has promoted situated learning further. Assessment of educational effects is necessary for this revised model.

Take-home messages: The revised Dual Training Model has preserved feasibility and significant educational value for both students and residents as the former model.

8H/4
Unraveling expert assessment of diagnostic clinical reasoning of medical students in clinical practice by a grounded theory approach

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Background: The process of clinical reasoning is complex, not yet completely understood and it takes years of deliberate practice to become good at it. Its assessment is in need of improvement.

Summary of work: A grounded theory approach was used to analyze what indicators expert physicians use to assess clinical reasoning abilities while observing medical students during the process of history taking. Twelve randomly selected recorded clinical encounters of students at the end of the internal medicine clerkship were observed by six expert clinical teachers. The teachers were stimulated to think aloud to get insight in their assessment process.

Summary of results: Main indicators of clinical reasoning ability were distilled from the observable acts of the students. These were: taking control, recognizing and responding to relevant clues, specifying symptoms, asking specific questions that point to pathophysiologic thinking, placing questions in a logical order, checking with the patient, summarizing and body language. Next to that also activities of the patients, the course and result of the conversation were seen as indicators of clinical reasoning. Efficiency was also regarded as an important point. Context factors, own preferences, and undefined feelings appeared to be variables in their judgment of clinical reasoning also.

Conclusions: A concept for expert assessment of the process of clinical reasoning was created by a grounded theory approach. This concept can be used for further development of assessment methods of clinical reasoning.

Take-home messages: By grounded theory approach new concepts of expert assessment can be revealed.

8H/5
A recognition study to test the psychological validity of illness scripts

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Background: Diagnostic knowledge is often supposed to be organized in the format of illness scripts, structures tuned toward efficient use of incoming information enabling physicians to arrive at a diagnosis. Yet, the specific features of such scripts are rarely investigated.

Summary of work: This study investigates whether predictions for recognition memory of case information based on illness script theory can be confirmed, and whether differences between more and less experienced participants can be found. Second and sixth year students and experienced family physicians participated in an experiment; the influence of typicality of information (prototypical versus atypical statements), textual presence (verbatim or implicit), and delay (15 minutes or 1 week) on recognition memory discrimination and recognition reaction times was measured.

Summary of results: As predicted, memory discrimination was better at a shorter delay and for atypical, as opposed to prototypical, information. In addition, at the longer delay, the influence of the script becomes more dominant, as opposed to memory for specific case information. Reaction times, on the other

hand, did not show a consistent pattern, and the predicted developmental differences were not found. Even the amount of disease-specific experience did not make a difference.

Conclusions: Experienced as well as inexperienced physicians appear to dispose of illness script structures, which explains poorer memory discrimination for prototypical than atypical information, and the dominance of script knowledge over memory for specific information after a delay.

Take-home messages: Differences between expert and nonexpert illness scripts will probably become apparent in script activation, rather than in the knowledge contained in the script.

8H/6

Modified Venndiag in Learning Clinical Reasoning: The role of Meta-cognitive and Cognitive Prompts

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Background: Learning clinical reasoning is affected by student guidance, affect/motivation, and mastery of biomedical sciences. Student guidance aims to assist students in generating knowledge, skills, and empowering student to be an independent learner. Guidance provided externally in the teaching session is expected to be internalized by students. The aim of this study is to compare the effect on clinical reasoning skills by utilizing combination of meta-cognitive and cognitive prompts (Modified Venndiag) as well as the cognitive prompt (Venndiag) among the medical students.

Summary of work: This experimental study was set up at Medical school of Muhammadiyah University of Jakarta, whose students are the subjects. Participants selected randomly were grouped into two groups: control (Venndiag) and experimental (Modified Venndiag). The comparison between control group and experimental group was analyzed by a chi-square test and an independent t-test.

Summary of results: The chi-square test results show significant association between the type of prompting and status of post-test score $2(1)= 4.08$, $p= 0.043$. The odds ratio of increasing score was 3.06 times higher if students used a combination of Modified Venndiag. On average, the difference between post test and pre-test in control group and experimental group was not significant $t(53) = 1.688$, $p = 0.097$.

Conclusions: The result shows that the possibility of increasing clinical skills reasoning by applying a

combination of Modified Venndiag is greater than applying only Venndiag.

Take-home messages: It is implied that the transition of external guidance (only from a teacher) to shared guidance (from student and teacher), and then to internal guidance (only from student) should be fostered.

8I Short Communications: Problem Based Learning 1

Location: Club A, PCC

8I/1

Evaluation of summary writing with a mind map to enhance the PBL learning process

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Background: Problem based learning enables constructive, contextual and collaborative learning but an inherent disadvantage of PBL is the knowledge acquired through PBL is perceived to be poor and unorganized. Some studies have suggested documentation of the PBL discussion to organize information and fully realize the benefits of PBL.
Summary of work: This study evaluates the benefits of summary writing with a mind map in PBL. Medical students were briefed on the process of mind mapping for summarizing the PBL group discussion and completed a pre intervention feedback form on the PBL learning process. The mind maps were collected at the end of PBL session 2, feedback was provided on each student's mind map and returned before the next PBL trigger. Students then completed a post intervention feedback form. Statistical analysis was performed with the Student's t-test and ANOVA with post hoc analysis (LSD).
Summary of results: The mean pre and post intervention scores continued to be positive even after the intervention of summary writing with a mind map but there was a difference in the ranking of the PBL learning processes with summarizing and structuring concepts at the top after mind mapping. The qualitative analysis of students' comments indicated that the students considered the mind mapping exercise useful although it was time consuming. The key benefits perceived by the students were, mind mapping helped in summarizing the PBL discussion and provided a revision tool for reflection and recall.
Conclusions: The study has shown that students perceived summary writing with a mind map in PBL beneficial.
Take-home messages: PBL learning process can be enhanced by summarizing the PBL group discussion using a mind map which allows for active learning and provides a revision tool.

8I/2

What makes a bad PBL tutor?

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Background: In student centred Problem Based Learning the tutor must be a skilful facilitator. The characteristics of good tutors have been enumerated frequently, but bad tutors have not been studied as closely.
Summary of work: This study draws on 10 years' experience supervising PBL tutors at Flinders University. "Bad" tutors were identified from reports by students either verbally to me or from the (anonymous) routine evaluation of tutors conducted by students at the end of each tutor's period with the group (4-9 weeks). Information often came from other sources too, but was not included. Following an unsatisfactory evaluation, I interviewed the tutor.
Summary of results: The most common complaint was that the tutor talked too much. The subject of the talk varied, but the least appreciated was repeated anecdotes from the tutor's many years of valuable experience. Accounts of the tutor's non-medical interests were also disliked. A less frequent problem was constant intervention in group process rather than waiting to see if the group could solve its own problems, or when the group did not have a problem. The common thread was the tutor wanting to be the centre of attention. Less common was the tutor doing nothing when intervention was needed. This seemed to occur when the tutor was either too timid, or tutoring only because it was an obligatory part of their job. Twice it was due to the tutor's poor hearing, which was easily rectified by a hearing aid.
Conclusions: Once identified correctly, most of these problems were successfully remediated by counselling.
Take-home messages: "Bad" tutors can improve.

8I/3

How medical students perceive their studies: a comparison of reformed and traditional medical degree programs at Charité – Universitätsmedizin Berlin

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Background: This study investigates self-reported aspects of academic success in three medical degree

programs at the Charité (traditional complete cohort, problem-based small cohort, problem-based, outcome-oriented complete cohort) and combines them with students´ characteristics. Focus was the influence of problem-based learning on subjective measures of academic success.

Summary of work: A secondary analysis of data first published by Dettmer & Kuhlmey (2010) is combined with newly collected data. First and second year students of each curriculum answered multiple questionnaires. They were analysed in terms of academic success, which is operationalised according to the educational aims of the Charité as well as the German Medical Licensure Act. Investigated outcome criteria (study satisfaction, career plans, thoughts about quitting, perceived stress and its consequences, work life balance) are in line with theoretical approaches to academic success.

Summary of results: 517 first year and 332 second year students replied (response rate 53%). Results favour the problem-based curriculum in terms of study satisfaction (p< .01), stress perception (p< .01) and working as a physician in curative domains. Regression of anxiety and burnout symptoms on students´ self-efficacy beliefs confirms their negative relation (p< .01).

Conclusions: Students of problem-based curricula present themselves as being less distressed, more satisfied and more motivated to choose specialities that highly involve communication and patient work. Educational and organisational differences of the three curricula are taken into account to discuss their benefits and strains.

Take-home messages: Students' perception is key to the global outcome picture of problem-based curricula and adds to a theoretically founded analysis of academic success.

8I/4
Tutor interventions in dealing with conflicts on knowledge

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Background: This study examines tutor interventions and their role in facilitating students to collaboratively resolve conflicts on knowledge in PBL-tutorial discussions.

Summary of work: Four videotaped reporting phase tutorial sessions including three tutors and 33 first-year medical and dental students were analysed using qualitative interaction analysis. The aim was to find out 1) how the tutor interventions helped the students to

resolve conflicts on knowledge, 2) how the tutor interventions during conflict episodes differed from the interventions during the rest of the sessions, and 3) how the tutors intervened during conflicts about different types of knowledge.

Summary of results: The tutorial discussions included 92 tutor intervention episodes and 43 conflict episodes. The tutors intervened during 24 of the conflict episodes and resolved 13 of these episodes. During conflicts on knowledge, the tutors often gave explanations instead of asking questions or encouraging students to deal with the issues. The tutors gave more explanations during conflict episodes. The tutors more often resolved conflicts on factual knowledge than conceptual knowledge.

Conclusions: The lack of thought-provoking questions and the amount of explanations during conflict episodes hinders students from collaboratively resolving conflicts on knowledge. The findings suggest that tutor training should focus on promoting tutors' understanding on when and how to intervene in the discussion during conflicts on knowledge.

Take-home messages: Tutors' skills to encourage students to collaboratively handle conflicting ideas and to stimulate discussion with questions that promote the elaboration of the issues need improvement.

8I/5
Using Social Network Analysis to investigate Patterns of Interactions in online Problem Based Learning (PBL)

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Background: Social Network Analysis (SNA) is an innovative method for the study of social interactions of online groups at an individual level as well as group level. Qassim College of Medicine uses collaborative online group discussions (virtual PBL) to complement conventional PBL; to help overcome student perceived shortcomings and improve their learning experience. To evaluate the participation of students and their relations to each other and to their tutors, we need to go through tons of online non-structured information. Automated discovery and analysis of groups, contributions and relationships by means of SNA could help in identifying patterns of interactions between students in virtual PBL, flow of information exchanged among participants/groups.

Summary of work: We used Meerkat-ED, an application that prepares and visualises overall snapshots of participants in the discussion forums, their interactions, and the leaders/peripheral students in these discussions.

Summary of results: By analysing the data and visual mapping of interactions we were able to identify: Active

and inactive Groups; Separate and interconnected PBL groups; Most influential members (most outgoing connections); Most prominent members (most incoming connections); Central members in the group; Outliers (least connected); Density of contributions; Evolution of networks and patterns of interactions between members and groups over time.

Conclusions: SNA can analyze huge amounts of information in a short time and provides a bird's eye view of students' contributions and interactions in online PBL and inter-group relationships.

Take-home messages: SNA could help instructors better assess online discussions.

8I/6
Does PBL work? Does music?! - A metaphor for education

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Background: With respect to the Conference's theme of coloring outside the lines of conventional education, the author revisited a music metaphor he presented at AMEE 2004 in which he discussed "the moribund state of problem-based learning theory and research", this based on his observation that the widely recognised positive emotional effects of PBL remained under-examined and under-theorised. While the present PBL literature reveals that little has changed, theoretical developments in other fields both within and beyond education indicated that re-animation of the metaphor could be productive.

Summary of work: Metaphor theory posits that they can facilitate 'epistemic access' to new ideas and theories that can illuminate a target topic. Here immersion in the literature of metaphor itself and its intersections with musicology and music, emotion theory and medical education provided the basis for a search for a richer understanding of PBL than that afforded by the health sciences education literature.

Summary of results: A number of overlapping theories and insights emerged all of which, in sum, pointed to the primacy of emotional, cultural and social factors in education.

Conclusions: Metaphor theory suggests that successful metaphors "possess the prestige of the dominant discourses" of their time. A satisfying outcome from this study is the congruence between the results above and the features of the paradigm shift reportedly occurring in medical education, this reflected in a growing awareness of the importance of the emotions in education and the emergence of socio-cultural models of learning.

Take-home messages: Music metaphors, as does music itself, provide a powerful stimulus for learning.

8J Short Communications: Best Evidence Medical Education (BEME) 1
Location: Club E, PCC

8J/1
Evidence regarding the utility of Multiple Mini-Interviews for selection to undergraduate health courses: a BEME systematic review in progress

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Background: In selection for undergraduate health programmes, applicant numbers invariably exceed the number of available places. Admissions procedures focus on identifying which candidates have the necessary intelligence and personal attributes to be successful in the chosen profession. Intelligence can be assessed, for the purposes of admissions, through previous academic qualifications and scores on admissions tests. Personal attributes are more difficult to assess. In 2004, McMaster University developed the Multiple Mini-Interview (MMI), a multiple sample approach to admissions interviews, with the intention of increasing reliability and ability to predict clerkship performance. MMIs assess candidates personal attributes through separate stations. Many schools have since adopted the MMI approach internationally.
Summary of work: We are undertaking a systematic review and meta-analysis of evidence regarding MMIs. Our study protocol has been approved by the Best Evidence Medical Education collaboration (BEME). 13 databases have been searched through 34 terms and their Boolean combinations. Several key journals have been hand searched since 2004. Studies meeting the inclusion criteria will be coded using a modified BEME coding sheet. Extracted data will be synthesised through meta-analysis and narrative synthesis.
Summary of results: Preliminary results will be available for presentation.
Conclusions: MMIs are becoming increasingly popular in selection for all health professions. Through this review we intend to explore, analyse and synthesise the evidence relating to MMIs for selection to undergraduate health courses. Ultimately we aim to synthesise the existing literature to guide and inform those responsible for admissions to health professions courses.

8J/2
A BEME Review: the contribution of theory to the effective development and delivery of interprofessional curricula in health and social care professional education

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Background: Strong theoretical underpinnings are essential to the development of interprofessional education and medical education in general. In interprofessional education, researchers and educationalists alike have mined other disciplines for theories with potential utility. This has resulted in many theories on 'offer'. This plethora, and the varied quality of theory application, often confuses, rather than clarifies, ways in which theory contributes to effective IPE curricula.
Summary of work: A BEME review is currently in progress that aims to offer guidance to curriculum developers on how to design rigorous professional curricula with strong theoretical underpinnings. It asks: What is the contribution of theory to the effective development and delivery of interprofessional curricula in health and social care professional education?
Summary of results: We present the outcomes of the pilot conducted for the review and highlight the challenges we have faced. We focus specifically on the benefits and challenges to having a librarian on the review team, the importance of a pilot in such a review and the challenges to measuring the quality of theory application in medical education development and delivery. We also share some of the preliminary findings from the pilot.
Conclusions: The review will enable medical educators to select and apply theories that are fit-for-purpose, that promote reflection on the why, rather than just the how, of designing, delivering and evaluating an effective curriculum.
Take-home messages: A librarian is an invaluable resource to a review team. A pilot of the review is essential to test the protocol at all stages of the review.

8J/3

Teaching Professionalism in medical education: A best evidence in medical Education (BEME) systematic review

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Background: There is no consensus in the literature as to the best methods for teaching professionalism, nor even on how professionalism in medicine should be defined. While many papers have been published on teaching medical professionalism, little evidence of effectiveness is included in them. We sought to identify best evidence for teaching medical professionalism to medical students.
Summary of work: Through a systematic search of the literature we identified 217 papers, of which we deemed 43 to be of higher quality. We also identified eleven books on teaching professionalism.
Summary of results: There was a wide diversity in study types. Most papers were of the viewpoint/opinion variety. Since we were interested in the conceptual basis of teaching professionalism, and since much of what has been published (and most of what has been highly cited) consists of this type of paper, we included them in our review. Evident themes in the literature are that role modelling and personal reflections, ideally guided by faculty, are the important elements in teaching professionalism, and are widely held to be the most effective techniques for developing professionalism.
Conclusions: We conclude that there is as yet no unifying theoretical or practical model to integrate the teaching of professionalism into the medical curriculum that has been validated over time or across institutions as being effective.
Take-home messages: While it is generally held that professionalism should be part of the whole of a medical curriculum, the specifics of sequence, depth, detail, and the nature of how to integrate professionalism with other curriculum elements remain matters of evolving theory.

8J/4

How does the teaching of a structured tool for communication within and between teams contribute to student learning? A Best Evidence Medical Education (BEME) systematic review

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Background: Recent prominent cases of poor patient care and compromised patient safety have highlighted the importance of good communication within and between health care teams. In response, standardised forms of communication, such as Situation Background Assessment Recommendation (SBAR) are increasingly used in practice and taught to trainee health care professionals.
Summary of work: We have undertaken a BEME systematic review to consider how the teaching of such 'tools' contributes to student learning in the pre-registration setting. Our review explores the range of tools currently taught within pre-registration curricula, the teaching methods employed and how such teaching influences students' knowledge, skills and attitudes. We are particularly interested in how such teaching varies with profession and how far it takes place within the context of interprofessional education (IPE).
Summary of results: For our review, we have used a definition of 'team' that encompasses the different types identified by the 'TeamSTEPPs' programme (1). Such teams may be temporary or long standing and involve two or more individuals, either from the same or different professions. We define a 'structured tool' as any systematic approach to communication that is taught to students in order to enhance their ability to communicate effectively within or between professional teams.
Conclusions: This presentation will discuss progress with our review, including protocol development, literature searching, our approach to assessment of quality and preliminary findings. We will also report on our experience of using review management software DistillerSR in the context of an educational systematic review.
(1) Agency for health care quality and research. Available at: http://teamstepps.ahrq.gov Accessed 11 03 13

8J/5

Is OSCE meeting current educational assessment requirements when used in undergraduate medical studies? Evidence from a BEME Systematic Review points to the OSCE as a '6 STAR EXAM'

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Background: Previously assessment requirements were focused in reliability and validity of the assessment tools but in recent years the importance of further criteria that relates to the closer relationship between assessment and teaching has been added (van der Vleuten 1996; General Medical Council 2011, Norcini et al. 2011). The objective of the study was to produce scientific evidence on OSCE suitability to assess learning outcomes i.e. to what extent is the OSCE meeting current assessment standards when used in undergraduate medical studies.

Summary of work: BEME methodology was applied by two independent coders, who scrutinized literature from 1975 until the end of 2008. From 1083 identified studies, 1065 were analysed to describe the alignment between OSCE and current requirements.

Summary of results: Evidence points to the OSCE as a reliable, valid, feasible, fair and acceptable exam (relevant and satisfactory) with a steering effect on learning and teaching.

Conclusions: It appears that OSCE has a more important role to play in the future, namely by being an 'authentic', 'overall exam' (multiple competencies in a single exam) where assessment is 'for learning' and not just 'of learning'.

Take-home messages: Although we must be aware of the possibility of a bias in the results - since the tendency is to publish more the stories of success than negative ones - the evidence brought up by this BEME systematic review on OSCE feasibility, reliability, validity, fairness, acceptability and educational impact justifies the OSCE being considered a '6 STAR EXAM'.

8J/6

Communities and medical education: from complexity to understanding

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Roger Strasser (Northern Ontario School of Medicine, Sudbury, Canada)
Lisa Graves (Northern Ontario School of Medicine, UME, Sudbury, Canada)
David Marsh (Northern Ontario School of Medicine, Community Engagement, Sudbury, Canada)
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Background: There have been many models of how medical education programs should and do interact with communities. These range from activities that address topics in community health but still take place in traditional academic settings to activities that directly engage members of a community in their design, conduct and evaluation. At the same time more and more programs are engaging aspects of community in their design and operation.

Summary of work: We have designed a two-arm BEME-registered systematic review to answer our question: 'how do different relationships between medical education programs and communities impact educational and health outcomes?'. One arm employs standard outcomes reviews based on Kirkpatrick criteria and strict filtering based on empirical methods and analyses to explore 'what works?'. The other arm is based on realist enquiry to explore 'what works, for whom and in what context?'. We have recruited 30+ reviewers from around the world who are working through a purpose-built online collaborative work environment that allocates, stores and provides aggregate reports on their reviews. The material selected for review is a combination of articles from academic journals, book chapters and other academic sources and greyer literature from institutional reports and similar sources. The study has been reviewed and approved by BEME and has passed REB review, and is currently under way.

Conclusions: We are developing models and meta-models that capture and describe a complex web of philosophies, practices and ideologies that in turn shape how medical programs engage with the idea and the reality of community.

8K Short Communications: Leadership 2
Location: Club B, PCC

8K/1
Collaborative leadership in action: developing the leadership faculty community

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Background: The international focus on developing students and doctors as teachers, researchers, clinical leaders and managers has led to inclusion of specific competencies at undergraduate level and the expansion of postgraduate training programmes, e.g. academic awards and workshops. However, there is a shortage of suitably trained leadership faculty, many of whom work in isolation.
Summary of work: The aim was to create a Leadership Faculty Community of Practice (LFC), which would support the development of junior clinical and educational leadership faculty, and provide a collaborative working and research network for more experienced faculty.
Summary of results: A Leadership Faculty Community has been developed, and continues to thrive, comprising leadership trainers and trainees within ASME, AMEE and JASME and leadership training programme providers. The first cohort of junior faculty are being trained and will shortly be running Leadership training courses themselves, supported and mentored by senior faculty.
Conclusions: The demand for leadership and management training for clinicians has led to the need for active faculty development to sustain the quality and delivery of these programmes. The LFC provides a collaborative forum for experienced faculty, and helps the development and mentorship of new and junior faculty. The formation of the LFC exemplifies Collaborative leadership. Our network is developing a critical mass of qualified faculty and supporting shared resources able to sustain, develop and deliver high quality leadership programmes worldwide.
Take-home messages: 1. An international shortage of leadership trainers requires proactive faculty development. 2. Engaging juniors early in their career helps succession planning.

8K/2
Using Simulation for leadership training

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Background: This innovative program Clinical Leadership in Action (CLiA) successfully advances simulation into the leadership training arena. Contrary to traditional lecture-based leadership courses, CLiA encourages deep learning through lived experience supporting trainees as they move into senior roles.
Summary of work: Working in a group simulation, trainees are challenged to investigate and respond to a complex patient complaint, by letter, and proposals for service improvement are also presented to a hospital board. Fidelity is enhanced by a bespoke hospital website, official hospital documentation and opportunities to attend face-to-face meetings with real experts, and a parent.
Summary of results: Within a safe environment, trainees assimilate new knowledge and work through the decision making process of responding to this complaint proposing a resulting service re-design. Participants report increased understanding of the senior role and greater confidence meeting these challenges. Trainees indicate that simulation is a useful tool in facilitating a change in attitudes and behaviours stating their intention to apply these changes in their workplace.
Conclusions: Teamwork is integral to the depth of enquiry. It is reinforced by the accessibility to electronic resources and targeted learning enabling direct application of new knowledge. Immediate feedback from faculty enables significant shifts resulting in a more patient-centred approach. Changes in attitude and behaviour are evident by the end of the programme. CLiA avoids the limitations of traditional lecture-based leadership courses by providing the opportunity to practice new skills, learn from each other and build on current knowledge.
Take-home messages: Simulation is an effective learning tool for leadership and management training in healthcare.

8K/3
Walking the talk: The utility of a multi-source feedback tool in postgraduate medical education

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Background: Postgraduate Program Directors (PGPDs) get little formal feedback on their leadership. This research evaluates the feasibility and utility of a competency-based multisource feedback (MSF) instrument and process in providing PGPDs with comprehensive and constructive feedback on their leadership. The MSF instrument was designed based on a review of competency inventories and an iterative process involving national and local input.

Summary of work: 106 PGPDs were invited to participate and provide contact information for 10-20 colleagues (e.g. administrators, faculty, residency committee members, chairs, deans) to be invited to provide feedback on their performance. PGPDs also completed a self-assessment. The identified participants (IPs) received an email invitation and following their consent, they completed the online MSF instrument.

Summary of results: 17 (16%) of University of Toronto PGPDs identified a total of 389 potential IPs (mean 22 per RPD). 166 IPs completed the MSF, with a mean of 9 (response rate 43%) per RPD.   Most often, RPD self-ratings were lower than the mean of IP ratings on the five key performance domains (Communication and Relationship Management, Leadership, Professionalism and Self-Management, Environmental Engagement and Management Skills and Knowledge).

Conclusions: The combination of RPD views of their own performance and the feedback received served as useful tools for feedback on their leadership performance. Although the interest in participation in this pilot was high, the feasibility and utility of the tool was challenged by assessors' response rates. Our findings indicate that formal feedback is welcome, feasible, and can support medical education leaders in providing direction for improving their practices.

Take-home messages: Multisource feedback for postgraduate program directors is welcome, feasible, and can support them in providing direction for improving their practices.

8K/4
Towards a reliable assessment of management competencies in postgraduate medical education: A Delphi study

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Background: Recent research has shown that current post-graduate training programs do not prepare trainees adequately in the field of health management. It is also thought that the key to the development of successful management-training programs is when valid and reliable assessment tools are used to test specific domains of management competencies in residents. A recent review of the literature however, revealed that there was little evidence supporting the validity and reliability of the assessment tools currently in use. We therefore decided to explore the current methods of assessments of management competency in the Dutch residency-training program and investigate the benefits and shortcomings of the assessment tools.

Summary of work: In November 2012 a Delphi survey among an expert panel group in medical management and leadership in the Netherlands was conducted. The panel comprised of clinical educators, care management stakeholders and residents with special interest in care management.

Summary of results: Respondents agreed that current assessment tools were inadequate for measuring the management competencies of residents. Although they agreed with the feasibility of the tools in use, they disagreed with the validity and agreed that there was a need for reliable assessment tools. The panel expressed that current assessment tools were not reproducible, did not provide a clear reflection of performance, were not capable of assessing all domains of the management competency and were not useful for differentiating residents' level of competency.

Conclusions: Of the current assessment tools in use, a combination of 360-degree feedback, portfolio, self-designed projects and clinical observations were recommended for assessing management competencies in residents.

8K/5
Development and reliability testing of Ward Round Assessment of Performance (WRAP) - A 360 degree assessment tool for ward round leadership skills

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Background: Although leading a ward round is an essential prerequisite for hospital consultants, this skill is rarely assessed during training. There is often a lack of supervision and feedback on ward rounds, resulting in inadequate preparation of senior trainees for this important responsibility.

Summary of work: An assessment tool called WRAP was developed to provide 360 degree multisource feedback of ward round leadership skills and piloted in West Midlands Deanery. The WRAP tool has 5 domains with description for each of the domains and a 5 point rating scale. WRAP forms were distributed by trainees to assessors who were asked to observe the trainee leading ward rounds. The completed forms were summarised by the trainee's educational supervisor and feedback provided.

Summary of results: 90 trainees completed 289 individual assessments. Reliability of WRAP is very good with a Cronbach's alpha of 0.843. Consultants gave consistently low scores than other assessor groups and this was statistically significant with a p value of 0.002 for the domain preparation and organisation. A generalizability D study showed good reliability with a G co-efficient of 0.8 for three raters.

Conclusions: WRAP tool with feedback from three assessors gave good reliability and hence it is a practical one that can be used in both large and small units. This was designed for senior trainees in Paediatrics but is also likely to be of benefit to those in other specialities.

Take-home messages: WRAP tool enhances trainees' learning by assessment of their leadership on supervised ward rounds and promotes a culture of constructive feedback.

8K/6

Team harmony in healthcare: Lessons from musicians

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Gabrielle McLaughlin (University of Toronto, Faculty of Pharmacy, Toronto, Canada)
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Background: As healthcare becomes increasingly team-based, we need new ways of educating trainees. One approach is to seek innovative ideas from other professions who have effective models of collaboration. Doctors have already turned to musicians for lessons in skills development, improvisation, and performance. However there has been little empirical study of musicians' interactions in ensembles with a view to enhancing healthcare education in communication and collaboration.

Summary of work: Using semi-structured interviews of non-conducted professional small musical ensembles, we explored factors musicians consider important for effective ensemble function. The interviews were transcribed and then coded thematically.

Summary of results: Several prominent themes were identified related to group interaction and leadership; we will focus discussion on one major theme relating to effective collaborative chamber ensemble function, that of the fundamental role of accompaniment. The supporting voices are in not seen as secondary to melody, but rather as a driving force for the group sound. The importance musicians place on all of the musical parts may offer healthcare more nuanced models of group interaction than traditional medical models of hierarchical leadership. Musicians' strong appreciation of balance and the need for all members to be active participants, active listeners and forceful voices may enhance healthcare team interactions.

Conclusions: Examining various effective means musicians have found to communicate and collaborate in small groups suggests potential ways to improve healthcare team function. These insights may help lead to better healthcare team education and practices.

Take-home messages: Chamber ensembles have valuable lessons to teach healthcare about communication, collaboration, and group leadership.

8L Short Communications: Interprofessional: Undergraduate
Location: Club C

8L/1 (15334)
Promoting collaboration between medical students and nursing students through clinical research - A model for Interdisciplinary Collaboration

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Background: Teamwork is a key component of healthcare and training in the health sciences. Evidence-based medicine necessitates that students in the health sciences become familiar with the health research continuum. It is therefore vital that medical students, nursing students, physicians and nurses be given the opportunity to participate in interdisciplinary collaboration through clinical research.
Summary of work: Medical students from the Ross University School of Medicine (RUSM) oncology club and nursing students from the Dominican school of nursing were members of a group of trained interviewers who administered a questionnaire in the face-to-face format as part of a clinical research project to improve the early detection and diagnosis of breast cancer in Dominica. This project was aimed at identifying the knowledge, attitude, practice and behaviour of health care workers and general practitioners directly involved in breast care. The subject matter of breast cancer served as an appropriate catalyst for interdisciplinary collaboration in view of the high incidence of breast cancer and the multidisciplinary approach to the diagnosis and treatment of breast cancer in the clinical setting.
Summary of results: The medical students and nursing students expressed satisfaction in being able to work alongside one another in the gathering of information from their peers. All participants were able to actively participate and partner in the processes of discovery and development that is health research. The interviewers themselves reported an increase in their knowledge, and positive reinforcement of practice and behaviour of the subject matter through their administering of the questionnaires.
Conclusions: An interdisciplinary approach to participation in clinical research helps to facilitate teaching and learning of knowledge, and develops the skills which are required for the interdisciplinary teamwork necessary for the practice of medicine.
Take-home messages: Interdisciplinary collaboration between medical and nursing students should be encouraged and facilitated.

8L/2
Promoting interdisciplinary learning in a multidisciplinary faculty

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Background: The University of the Witwatersrand offers undergraduate degrees in six health science professions. Teaching and learning are usually discipline-based with each discipline planning and implementing the curriculum individually. Teachers may teach in other disciplines, but students generally do not learn together.
Summary of work: The medical students begin clinical practica in their third year of study. At the beginning of the third year students are allocated to wards to work with nurses. During this placement students are required to participate in all the nursing activities. The value of this experience has been documented in students' portfolios of learning. The second interdisciplinary experience which the medical students have been exposed to is having pharmacy students accompany them in the wards during practica. There are usually 3-4 medical students and 1-2 pharmacy students who as a group are allocated to a particular ward. They are required to take patient histories and examine patients.
Summary of results: Students have described the value of both types of learning experiences, in particular noting the value of learning about the roles of other disciplines, the development of respect for what the other does and the value for the patient when there is interdisciplinary care. The value of both these learning opportunities can be aligned with Kolb's experiential learning cycle.
Conclusions: Interdisciplinary learning opportunities are valuable for both the student and the teacher as relations between the disciplines are fostered.
Take-home messages: Interdisciplinary learning opportunities must be identified and encouraged to promote multidisciplinary care.

8L/3

The impact of curricular design and expert modelling on interprofessional education in the health workplace

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Background: Studies of interprofessional education (IPE) report that structured initiatives can help to develop learners' dispositions for team-based practice. The majority of studies focus on interprofessional education initiatives in the university setting, with less research investigating the experience and outcomes for learners of interprofessional education activities in the workplace setting.
Summary of work: This research was funded in 2011 and investigated medical students' experiences of an IPE placement (Greenstock et al 2013). Medical students (n=15) who rotated through the targeted placement at a rehabilitation and palliative care facility were interviewed via focus groups to elicit their experiences of the placement.
Summary of results: Thematic Analysis of the data revealed three key findings: 1) For the learners, interprofessionalism was seen to sit on the margins of medical practice. 2) The placement, although intended to promote the development of interprofessionalism, lacked the design qualities needed to achieve these aims. 3) Discipline-based role models are key to orientating learners to what is important in practice.
Conclusions: The medical students, while able to identify the advantages of interprofessional practice "once they became" a qualified practitioner, saw IPE as relatively low on their priority list as busy students, subject to regular assessments of their technical skills. They reported that they were being assessed on their 'doctoring' and dismissed any activities seen to be peripheral to this agenda.
Take-home messages: Students reported that their engagement with IPE activities was motivated by a focus on acquiring patient related clinical skills and on learning from role models within their own profession. The results call for more research into the extent to which educators model interprofessionalism in the academic and clinical workplace.
Greenstock L, Molloy E, Fiddes P, Fraser C, Brooks P (2013): We are studying medicine. The Clinical Teacher (accepted 18 Feb 2013)

8L/4

International Classification of Functioning, Disability and Health (ICF): A framework for transformative interprofessional education

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Background: To promote health equity, focus is needed on providing patient-centred and community-based care. This challenges educationalists to advocate for instructional and institutional reform, including the advancement of interprofessional education (IPE). To enhance patient-centred interprofessional care, the WHO recommends using the framework of the International Classification of Functioning, Disability and Health (ICF). Stellenbosch University's IPE strategy has promoted the ICF since 2010. Medical students use this framework in approaching and managing their patients. When presenting patients using the ICF, they are assessed by an interprofessional healthcare team.
Summary of work: This study aimed to evaluate how using the ICF was experienced by medical students, facilitators of learning and patients; and how applying the ICF framework contributed to instructional reform, institutional reform and interprofessional practice. Associative group analysis was used to conduct this study, assessing spontaneous free word associations given by different groups in response to specific questions. The groups in this study consisted of medical students (37), facilitators of learning (18) and patients (15). During a systematic analysis of the responses, themes were formed and interpreted.
Summary of results: Students found the ICF assisted them to adopt a patient-centred approach. Patients experienced healthcare received positively: being listened to and cared for. Facilitators reported being indirectly challenged to apply the ICF framework themselves resulting in patient-centred and interprofessional care. This enhanced teamwork and job satisfaction.
Conclusions: Assessment of student presentations using the ICF was the driver to encourage interprofessional practice among students and health professionals resulting in improved patient outcomes.
Take-home messages: The ICF framework as interprofessional approach facilitates patient-centred care.

8L/5

What do medical and nursing students narrate about Interprofessional Collaboration during their study?

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Background: Interprofessional Learning (IPL) and
Interprofessional Collaboration (IPC), important in
medical practice, are not included in the Dutch medical
education. The Institute for Education and Training,
Amsterdam, would like to integrate IPL in the
curriculum, which is aligned with the conceptions of
students to make the learning more authentic.
Narratives, as a research method, can be used to
uncover the unconscious conceptions of students.

Summary of work: We asked 10 medical (all years) and
5 nursing students to narrate one positive and one
negative experience of IPC and how they would like to
learn about IPC. The objective was to find out what the
students unconsciously thought about learning with,
from and about their own roles and those of the other
professions.

Summary of results: Two researchers analyzed the
narratives independently. While recalling both positive
and negative experiences, the students described mostly
two themes: 1. Teamwork is important for IPC and is
visible when the patient situation is critical. 2. There is a
strong effect of power relations on communication.
Sometimes, in spite of being more aware of the patient
situation, nurses refrain from giving their opinion
because of earlier experiences of being excluded from
the decision making process. About formally learning
about IPC, the students would like to learn through self-
reflection rather than through assignments.

Conclusions: Students find teamwork and power
relations important in IPC. Medical students are less
aware of the roles of nurses than nursing students are of
doctors.

Take-home messages: Students' conceptions can be
useful as a starting point in developing themes for
Interprofessional Learning.

8L/6
Simulation based Inter-Professional Obstetrics and Gynaecology Education

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Background: Simulation is an established tool for team
based learning. The aim of these workshops was to: (1)
Assess students' confidence in performing core clinical
examination skills (2) Assess students' attitude towards
inter-professional group learning (3) Assess student
satisfaction in learning the described skills.

Summary of work: The innovation introduced consisted
of teaching interprofessional groups of students,
procedural skills together using simulated models. The
training skill modules taught included speculum
examination, bimanual examination, pap smear, vaginal
examination in labour and normal vaginal birth with
estimation of blood loss. There were 8 workshops over
the year with 40-45 students in each workshop. All
students completed an evaluation form with 30 items
graded on a 5 point Likert scale.

Summary of results: 237 medical and 57 midwifery
students attended the workshop and filled the feedback
questionnaire. 186 (78.4%) medical and 56 (98.2%)
midwifery students felt it was beneficial to attend these
workshops in an inter-professional setting. 97.6%
medical and 87% midwifery students felt that the
content of each component of the workshop was
relevant to their course. 97% medical and 85.9%
midwifery students felt that the teaching was pitched at
an appropriate level for their knowledge and skill. 95.9%
students felt that these topics were taught well with the
use of these models. 93.9% medical and 80.7%
midwifery students felt that their confidence in
examination skills was significantly improved.

Conclusions: Overall improvement of confidence in
Obstetric and Gynaecology skills was demonstrated in
both medical and midwifery students. Students training
to be health professionals find it beneficial to be taught
together as a team.

Take-home messages: Simulation is a powerful tool for
inter-professional learning in medical and midwifery
education. The innovation in this study was the use of
part task trainers in specific modules designed to cover
important aspects of O& G teaching.

8M Short Communications: Student as Resource Developer
Location: Club D, PCC

8M/1
Development of educational videos for clinical skills training

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Background: Clinical simulation provides a safe and monitored learning environment for training and development of basic medical skills, consistent with what is expected in the training necessary to meet the demands of modern health.
Summary of work: We report a project developed by medical students of creating educational videos for teaching clinical skills and some medical procedures in order to improve learning and strengthen the basis of these theoretical and practical skills.
Summary of results: Twenty three videos, approaching each clinical examination skill were developed by medical students, using checklists provided by teachers for training these skills in the simulation lab, a simple video camera. The students themselves acted in the videos and edited them. The videos are now being used by teachers to improve classes in simulation, using the "watch then practice technique" and for out of class individual study.
Conclusions: Students and teachers were satisfied with the inclusion of the videos during classes of clinical examination and the availability of the videos for the out of class study. This low cost material was of significant relevance to the practice of clinical skills.
Take-home messages: Students can contribute to the development of relevant educational material.

8M/2
Problem Based Learning (PBL) and storyboarding: a vehicle for medical students as co-creators of their own learning

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Background: Storytelling is a powerful learning tool. PBL scenarios are often presented to the learner as narrative. These narratives typically include an account of phenomenological events, woven together by text to form a story.   Storyboarding is a technique used in film and animation and is being used increasingly in the design of educational packages. A storyboard is an illustrated way of telling a story; it is descriptive, visually-rich in information, easily understood (and thereby remembered) and engaging. Cells or frames are arranged to tell the story in a logical flow of information as a 'comic strip'. The frames contain visual material; the text is added by the students exploring the story as they learn.
Summary of work: As an impetus for students to become co-creators in their own learning, a new case scenario was developed by a focus group of medical students using a storyboarding template. The novel scenario was presented to student class groups as part of the second year PBL student experience.
Summary of results: Evaluations (facilitators and students) confirm that use of the storyboard contributes to greater contextual engagement and enhances the learning process.
Conclusions: Greater emphasis should be placed on the potential of the story to facilitate learning and the extent to which students become engaged with the scenario.   A properly developed and presented story assists the learner to engage with processes of mental construction of a sequence of events; learning becomes more enjoyable and memorable.
Take-home messages: Students are a rich, and often underutilised resource in the creation of new learning materials.

8M/3
Involving students in Medicine to develop a tool to help refugees newly arrived in Quebec City, Canada

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Background: As a physician working at the Healthcare Refugee clinic in Quebec City, Canada, I notice than few tools were available to help this population.
Summary of work: Objective: To develop a practical tool for the refugees newly arrived in Canada we see at the clinic to help them in the first months after their arrival. This tool could be used by a large proportion of the refugees even those who are illiterate. To conscientize students in medicine about the difficulties encountered by these people in the first months after their arrival in Canada Method: Involving undergraduate students I receive at the clinic for rotations, we have conducted a survey with the health professionals of the Healthcare Refugee clinic and the professionals of the community organism partner in this program. According to the opinion of these professionals the choice of the tool to

be developed was made. The tool was developed and tested upon refugees to evaluate the usefulness and the clarity of the tool.

Summary of results: Different documents to help them to find the way to go to the health establishments in the Quebec City area, the bus to take to do so and the documents to bring with them to the consultation was developed. These tools were tested with some refugees, the opinion of the professionals, the bus conductors was also asked. After that the format of the tool was modified and tested again to a final format.

Conclusions: It is possible to develop tools to help newcomers, even illiterate. Involving undergraduate students in this kind of project is interesting for them and gives them an opportunity to be useful for this population.

Take-home messages: Involving undergraduate students in developing practical tools for patients is interesting for them, useful and helpful for the health team.

8M/4
Student created MCQs – high quality, satisfying – towering over faculty produced ones

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Background: Students' success in every module in the reformed curriculum (Modellstudiengang) of the Charité has to be controlled due to legal regulations. For the knowledge part this is regularly done using MCQs. The faculty has problems with the production of fair and qualitatively high questions. That is why a student group followed the call of a faculty member to produce good questions on their own.

Summary of work: 7 students (2nd semester) produced for two of the modules of the 2nd semester over a period of 8 weeks one MCQ per day – 35 MCQs per week – 280 over the whole period. The first half of these questions was presented to their fellow students as a test exercise. The peers not only tried to give the correct answer but in addition ranked every question according to difficulty and appropriateness for the educational objectives.

Summary of results: Student constructed MCQs not only had a high quality but showed an appropriate covering of the educational objectives and an adequate level of difficulty. They were highly welcomed by their peers.

Conclusions: Students are more capable than faculty to produce adequate MCQs for the assessment of their peers.

Take-home messages: "Do your own thing – your reward will be doing it, your punishment having done it."

8M/5
Peer Generation of Multiple Choice Questions: Student Engagement and Experiences

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Graham W Pettigrew (University of Edinburgh, Edinburgh, United Kingdom)

Background: The aim of this study was to evaluate student engagement and experiences in generating multiple choice questions (MCQs) for their peers.

Summary of work: A freely available on-line system for generating MCQs (PeerWise) was implemented in 3 courses of a veterinary programme. Participation was awarded a mark in two courses and was optional in the third. Students were asked to author, answer and rate each other's questions. Student engagement was correlated with exam performance. Student experiences were explored using an on-line survey. Qualitative and quantitative methodologies were used to analyse survey data.

Summary of results: In the courses where participation in the activity was awarded a mark, there was a significant positive correlation between questions answered and examination performance. Students were positive about the experience and wanted to use the system again in future courses. Thematic analysis highlighted students' views that engaging with the resource increased breadth and depth of knowledge and understanding and was very useful for revision purposes. There was a statistically significant difference between students in 2nd and 3rd year on whether students felt it was necessary for academic staff to be involved in the question review process.

Conclusions: Students recognise question authoring as useful for generating a revision resource; increasing depth and breadth of knowledge and also that it can be an enjoyable process.

Take-home messages: This study highlights the benefits of peer activity around question generation and proposes that such activities are an efficient and effective means to support student learning.

8M/6
Written assessment revised: case presentation on starting small, going large scale

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Radovan Hojs (University Medical Center Maribor, Clinic for Internal Medicine, Nephrology Department, Maribor, Slovenia)
Robert Ekart (University Medical Center Maribor, Clinic for Internal Medicine, Nephrology Department, Maribor, Slovenia)
Benjamin Dvorsak (University Medical Center Maribor, Clinic for Internal Medicine, Nephrology Department, Maribor)
Marko Zdravkovic (University of Maribor, Faculty of Medicine, Center for Medical Education, Maribor, Slovenia)

Background: Our Year-3 medical students take interim multiple choice question (MCQ) assessments on six major organ systems at Internal medicine subject. We have been using true/false type MCQs. Having high retake rates, teachers mostly believe that students do not learn enough. On the other hand, students dislike such questions due to reliability and validity issues, and their negative perception can lead to under-motivation for learning. Therefore, we decided to prepare an action research on MCQ transformation process leading to single best answer (SBA) MCQs in nephrology. Based on increased reliability and validity of the new testing format, we hypothesised: 1. Students' perception of assessment quality will improve. 2. Retake rates will decrease. 3. More teachers will start using SBA MCQs.
Summary of work: A team of four nephrology specialists and a recent medical graduate was formed (November 2012). Until now, MCQ development process included: blueprinting and common rules formation, question writing, team question review. Currently, the following actions are planned: papers' standards determination (content and question difficulty ratios), three 40-question papers preparation, papers piloting, informing students, students' and teachers' pre/post-testing perception evaluation. Students will sit the papers in May 2013.
Summary of results: So far, five people spent around 300 hours of pro-bono MCQ development. Overall action process, examples of our questions, exam performance data, teachers' and students' perception will be presented. Final impact, feasibility and sustainability of MCQ development in the subject will be addressed.
Conclusions: Due to mutual stakeholders' dissatisfaction, first steps to large scale written assessment improvement were made.

8N: Meet the Expert: David Eisenberg
Location: Meeting Room 2.1, PCC

David Eisenberg (Harvard School of Public Health, Boston, USA)

David's particular interests are aspects of nutrition and lifestyle education and their importance in the training of future generations of health care professionals. The majority of his academic work has been in the area of complementary and integrative medicine therapies and issues pertaining to the safety, efficacy, effectiveness, cost effectiveness (or lack thereof) of these practices individually. He has been a lifelong student of Chinese Medicine and is happy to talk about its interface with modern Western Medicine. Come to meet David if you would like to discuss these issues or anything else he talked about in his plenary presentation.

8O Workshop: Writing MCQs in challenging content areas
Location: Meeting Room 3.5, PCC

Kathleen Holtzman (NBME, Assessment Programs, 3750 Market Street, Philadelphia 19104, United States)
David Swanson (NBME, International Programs, Philadelphia, United States)

Background: Even the best item writers often find it difficult to construct MCQs focused on professionalism and ethics; systems-based practice and patient safety; and interpretation of the medical literature and evidence based medicine. Questions often turn out to ask for definitions rather than assessing whether examinees can apply their knowledge in these areas to decisions related to patient care. This workshop focuses on writing MCQs in challenging areas that require examinees to apply their knowledge in these areas.
Intended outcomes: At the conclusion of the workshop, participants will be able to:
Effectively structure scenarios that will assess application of knowledge rather than recall of facts
Develop item stems/option lists that assess these hard-to-measure competencies
Participate effectively in group review of MCQs
Structure of workshop: The workshop will be run in an interactive, seminar-style format as delineated below:
Goals and issues related to writing MCQs to assess professionalism and other hard-to-measure competencies;
Review of sample well-written items in each area;
Revision of poorly written items in interdisciplinary small groups;
Full group review of newly rewritten items;
General discussion of issues in assessment of hard-to-measure competencies.
Attendees will receive a copy of Case & Swanson's Constructing Written Test Questions for the Basic and Clinical Sciences (can be downloaded in PDF format in English, Spanish and Russian).

Who should attend: Faculty involved in writing MCQ-based exams, including directors of basic science courses, clerkships, and postgraduate training, members of Royal Colleges and specialty boards. Attendees should be familiar with guidelines for writing single-best-answer questions.
Level: Advanced

8P Workshop: MedEdWorld Interactive Demonstration
Location: Meeting Room 4.1, PCC

Catherine Kennedy (AMEE, Tay Park House, 484 Perth Road, Dundee DD2 1LR, United Kingdom)
Sheghley Ogivlie (AMEE, Tay Park House, 484 Perth Road, Dundee DD2 1LR, United Kingdom)

8Q Workshop: Different approaches to simulation for clinical practice
Location: Meeting Room 4.2, PCC

Rita Baumgartner (Red Cross University College, Nursing Training and Assessment, Eugeniahemmet T4:02, Karolinska University Hospital, Stockholm 171 76, Sweden)
Lena Stevens (Red Cross University College, Nursing Training and Assessment, Stockholm, Sweden)
Gunilla Bolinder (Karolinska University Hospital, Clinical Skills and Simulation Center, Stockholm, Sweden)
Marie Sunnerby (Karolinska University Hospital, Clinical Skills and Simulation Center, Huddinge, Sweden)
Samuel Edelbring (Karolinska Institutet, LIME, Stockholm, Sweden)

Background: Health profession institutions are often changing or amending their curricula to adapt to the fast-paced technological progress and economic and societal developments. Simulation-based learning and training is posed to transform both undergraduate and workplace-based learning to meet these challenges. Simulation learning can be superior to real-life learning since it can reduce time and remove extraneous details, optimizing the learning opportunity. Simulation allows exploring, repeatedly applying and assessing a trainee's acquired knowledge, making simulation a versatile form of learning in a safe and controlled environment and a useful method of both instruction and assessment. Intended outcomes: The aim is to identify and differentiate between simulation functions supporting health professions students to prepare for clinical practice by integrating clinical skills and knowledge. Participants will be able to evaluate models of simulation for different purposes of learning and assessment. The hands-on experience gained through the workshop can then be translated by the participants to practical implications to use in their own education programs.
Structure of workshop: Participants will be guided in the why, how and when the use of simulation for learning and assessment in clinical education. A series of short videos will exemplify progressive learning opportunities through simulation training in nursing at the Karolinska University Hospital's Clinical Skills and Simulation Center and developed at the Red Cross University College in Stockholm, Sweden. The participants will be facilitated in small-group discussions about simulation models adapted for different purposes. Issues of previous knowledge of learners, reflection, assessment, and check list grading will be discussed in relation to simulation.
Who should attend: Clinical educators, simulation instructors and people interested in assessing health professions students' competences.
Level: Intermediate

8R Workshop: GMC Trainer Accreditation: Opportunity or Challenge?
Location: Meeting Room 2.2, PCC

K Nathavitharana (NACT UK, Education and Training, Norfolk House East, 499 Silbury Boulevard, Milton Keynes MK9 2AH, United Kingdom)
E Spencer (NACT UK, Education and Training, Milton Keynes, United Kingdom)
M Clapham (NACT UK, Education and Training, Milton Keynes, United Kingdom)
A Thomson (NACT UK, Education and Training, Milton Keynes, United Kingdom)

Background: By 2016, those overseeing medical students, named educational and clinical supervisors for trainee doctors will have to be formally accredited by the General Medical Council (GMC).   The GMC trainer accreditation standards include: (1) Safe and effective patient care through training; (2) Establishing and maintaining an environment for learning; (3) Teaching and facilitating learning; (4) Enhancing learning through assessment; (5) Supporting and monitoring educational progress; (6) Guiding personal and professional development; (7) Continuing professional development as an educator. Standards (5) and (6) apply only to educational supervisors.
Intended outcomes: A cogent workplace based interpretation of GMC standards, facilitation of their implementation and consequent enhancement of effective support for trainers, are the anticipated outcomes. The workshop will provide a forum for debating wider international application of the generic standards.
Structure of workshop: This NACT UK workshop will be delivered by a faculty with broad experience of management and delivery of postgraduate medical education.   A series of interactive sessions will compare the GMC trainer accreditation standards to international criteria and so define and develop some clear descriptors. These requirements have resulted in a wide variety of Training the Trainer courses causing debate about the need for some benchmarking and credentialing. Educational portfolios, including multisource feedback for trainers, peer evaluation and appraisal will be explored.
Who should attend: This workshop will be relevant to those with responsibility for the management, supervision and delivery of medical education and those involved in faculty development programmes.
Level: Intermediate

8S Workshop: Supporting Struggling and Failing Trainees
Location: Meeting Room 3.1, PCC

Davinder Sandhu (Severn Deanery, Postgraduate Medical Education, Deanery House, Vantage Office Park, Old Gloucester Road, Hambrook, Bristol BS16 1GW, United Kingdom)
Alan Cook (Severn Deanery, Postgraduate Medical Education, Bristol, United Kingdom)

Background: The biggest challenge for Medical Trainers/Educators is how to deal with performance issues. About 5% of trainees struggle to complete their training and require additional targeted time or an extension of training. Some leave the profession. Many others have periods when they really struggle and need extra support with their training or managing life pressures. This is a traumatic experience and can be a huge drain of resources for faculty who often feel underprepared to deal with such occurrences. Failure to address them can lead to bitterness, huge remedial costs and legal challenges to educational institutions and employers.
Intended outcomes:
To gain an understanding of why trainees struggle and/or fail
To be able to analyse the causes of poor performance
To know how to pick up these issues early and raise them with a trainee
To know how to deal effectively with this and get good outcomes
Structure of workshop: An initial presentation and discussion led by Prof Sandhu, will focus on why trainees struggle or fail. This will be followed by group work reviewing written and filmed case studies and challenging situations. The workshop will conclude with advice based on researched best practice and guidance on how to develop focused action plans with struggling trainees.
Who should attend: This workshop is open to all involved with education; undergraduate, postgraduate and interdisciplinary nursing and allied health professionals
Level: Intermediate

8T Workshop: Flipped classrooms - the educators big stage for promoting learning
Location: Meeting Room 3.2, PCC

Vishna Devi Nadarajah (International Medical University, Human Biology, no 126, Jalan Jalil Perkasa 19, Bukit Jalil, Kuala Lumpur 57000, Malaysia)

Background: Flipped classrooms are widely used at schools and are gaining momentum with adult learning. Health professions educators have also been enticed with the concept of flipped classrooms to replace traditional lectures. Simply put, with flipped classrooms students access and go through learning materials (prepared or selected by the educator) at their own time and prior to the classroom sessions. During the classroom sessions, educators will instead engage and promote learning through opportunities for clarifications, assessment of student learning, collaborative and self-directed learning.
Intended outcomes: Participants are able to:
Plan and deliver a flipped classroom session based on student learning outcomes.
Use various interactive learning tools to engage and assess students during the classroom sessions
Structure of workshop: We discuss how health professions educators can use this method to deliver learning outcomes on topics related to basic medical sciences to clinical and pharmaceutical sciences. Our experience in introducing flipped classrooms at the International Medical University will provide (i) a case study of how flipped classrooms are supported by e-learning methods and (ii) add context to teacher and student perceptions/acceptance of this method. The workshop will also engage participants by introducing simple and easily accessible interactive tools for flipped classrooms in large and small group teaching.
Participants will also be asked to reflect on implementing flipped classrooms with other student learning activities within the curriculum including experiential learning.
Who should attend: Health Professions Educators who want to promote student learning and would like to use the classroom as the big stage to do this.
Level: Introductory

8U Workshop: An interactive workshop to understand and design Entrustable Professional Activities
Location: Meeting Room 3.3, PCC

Karen Schultz (Queen's University, Family Medicine, 115 Clarence St., Suite 101, Kingston, Ontario K7L 3N6, Canada)
Jane Griffiths (Queen's University, Family Medicine, Kingston, Ontario, Canada)
Jonathan Kerr (Queen's University, Family Medicine, Kingston, Ontario, Canada)
Laura McEwen (Queen's University, Post Graduate Medical Education, Kingston, Ontario, Canada)
Miriam Lacasse (Universite Laval, Family Medicine, Laval, Quebec, Canada)
Wayne Weston (Western University, Family Medicine, London, Ontario, Canada)

Background: There is a pressing need for competency assessment tool(s) and processes in medical education that support deliberate assessment across contexts, over time and by different people, incorporating the benchmarks that define core competencies. Entrustable professional activities (EPAs) meet these criteria. EPAs are "…those professional activities that constitute the mass of critical elements that operationally define a profession. They should only be entrusted upon a competent enough professional "(ten Cate & Scheele, 2007). In effect, EPAs are an agreed upon list of core activities a medical specialist would be expected to do and are the expression of multiple integrated competencies (e.g., multiple Can MEDs roles) as they apply in a practice setting. Ultimately, they act to bridge the formal curriculum with ''real world'' and ''real time'' practice (Carraccio & Burke, 2010) and so, are relevant for workplace-based assessment.
Doing work solidly grounded in the literature, a collaborative of 5 Canadian Universities have developed EPAs for Family Medicine. By outlining the generic steps to do this, this workshop will enable colleagues from any specialty to start building their own EPAs.
Intended outcomes:
Understand what EPAs add to competency-based assessment
Understand the steps to develop EPAs
Begin developing EPAs for their own setting
Structure of workshop: An interactive and participatory workshop with brief didactic introductory sessions, small to large group discussion and individual and table work.
Who should attend: Program, Assessment and Curriculum directors; educational researchers; anyone interested in innovative curriculum and assessment initiatives.
Level: Intermediate

8V Workshop: Evidence-based facilitated feedback: A model to enhance feedback acceptance and use
Location: Room A, Holiday Inn

Joan Sargeant (Dalhousie University, Division of Medical Education, 5849 University Ave, Rm C-106, Halifax B3H 4R2, Canada)
Eric Holmboe (American Board of Internal Medicine,, Philadelphia, United States)
Karen Mann (Dalhousie University, Division of Medical Education, Halifax, Canada)
Jocelyn Lockyer (University of Calgary, Faculty of Medicine, Calgary, Canada)
Ivan Silver (Center for Addiction and Mental Health, Education, Toronto, Canada)
Erik Driessen (University of Maastricht, Research and Development, Maastricht, Netherlands)

Background: Recent studies demonstrate that learners and physicians do not always readily accept performance feedback or use it for improvement. This occurs for various reasons including inconsistency of the feedback with self-assessment, concerns regarding data credibility, and perceived barriers to feedback use and change. We now understand feedback as a complex interaction in which the recipient plays an active role. Building on earlier work, this has led to the development of a theory and evidence based 4-stage model for facilitating acceptance and use of formal feedback.
Intended outcomes: The purpose of this workshop is to explore the proposed feedback model and its four stages, the theory informing it, and its potential application across the continuum of education. Participants will be able to:
Briefly discuss the theory and evidence informing the feedback model, including recent work by the authors.
Critique and discuss the model, drawing on their own experiences in giving, receiving and/or studying feedback.
Explore potential application of the model for undergraduate (medical school), postgraduate, and continuing education, and factors that might influence its usefulness.
Begin to identify ways to evaluate effectiveness of the feedback model.
Structure of workshop: This is an interactive workshop using multiple activities: interactive presentation of theories and evidence; small group examination of the model and sample feedback reports, and model critique; small and large group exploration of its potential application across the education continuum and its evaluation; large group and individual summary.
Who should attend: Educators, clinicians, students, residents, researchers
Level: Intermediate

8W Workshop: Use of an electronic portfolio for undergraduate medical students: Lessons learnt from three UK medical schools
Location: Room B, Holiday Inn

Julia Montgomery (Brighton & Sussex Medical School, Division of Medical Education, Mayfield House Room 344a, University of Brighton, Falmer Campus, Falmer BN1 9PH, United Kingdom)
Inam Haq (Brighton & Sussex Medical School, Division of Medical Education, Brighton, United Kingdom)
Tim Vincent (Brighton & Sussex Medical School, Division of Medical Education, Brighton, United Kingdom)
Laura-Jane Smith (University College London Medical School, Academic Centre for Medical Education, London, United Kingdom)
Deborah Gill (University College London Medical School, Academic Centre for Medical Education, London, United Kingdom)
Nigel Rawlinson (Bristol Medical School, Student Affairs, Bristol, United Kingdom)

Background: The UK introduced an electronic portfolio for all Foundation Doctors about 6 years ago. We will be discussing a collaborative project, between several UK medical schools and NES Scotland, into the introduction of the Foundation portfolio to medical undergraduates. The GMC (General Medical Council) has stated that all newly qualified doctors must have a portfolio which shows evidence of reflective writing, learning needs analysis and serves as a record of their achievements. The authors feel that the use of the Foundation portfolio rather than a bespoke portfolio lends authenticity for the students. This workshop will discuss implementation issues, use of student advocates and research data about student experiences.
Intended outcomes: Participants attending this workshop will understand the importance of the early introduction of authentic portfolios for undergraduates. They will be informed by original research of the challenges that arose from the introduction of a postgraduate portfolio to undergraduates. Each medical school has used the same portfolio in different ways and these will be presented.
Structure of workshop: Most of the workshop will be student led. Students will present original data from questionnaires and focus groups. Each medical school will present data on use and innovations within the portfolio. There will be live presentations of the electronic portfolio.
Who should attend: This workshop would be of use to any UK medical school interested in the introduction of the Foundation portfolio early in undergraduate life. It will be also be of use to anyone with a research interest in portfolio use.
Level: Introductory

8X Workshop: Creating PBL Cases: Challenges and Innovations
Location: Room D, Holiday Inn

Samy A Azer (King Saud University, College of Medicine, Medical Education, P O Box 2925, Riyadh 11461, Saudi Arabia)
Gudrun Edgren (Lund University, Faculty of Medicine, Center for Teaching & Learning, Lund, Sweden)

Background: The workshop will provide participants with key elements of creating a PBL template, and educational principles for developing authentic and integrated cases.
Intended outcomes: Participants will have a greater understanding of key elements of successful cases; and learn how to design new cases that address the intended learning objectives, including design of triggers.
Structure of workshop: Participants' previous experience in PBL will be briefly explored. Then there will be a short presentation with interaction with participants on principles for constructing educationally effective cases. Participants will then be divided into small groups and asked to use the principles learnt in beginning the development of the educational objectives, a trigger and an outline of a case. Time will be given to participants to complete their task. Outcomes will be brought together in a plenary session at the end.
Who should attend: Medical and health educators, directors of medical and/or health units, and those involved in writing PBL cases.
Level: Intermediate

8Z Posters: Clinical Teaching 2
Location: South Hall, PCC

8Z/1
Competency based curriculum students' self directed learning readiness in entering clerkship phase in Faculty of Medicine Pelita Harapan University

Rhendy Wijayanto (Faculty of Medicine, Pelita Harapan University, Medical Education, Tangerang, Indonesia)
Septiani Tjitasura (Faculty of Medicine, Pelita Harapan University, Medical Education, Tangerang, Indonesia)
Bertha Bertha (Faculty of Medicine, Pelita Harapan University, Tangerang, Indonesia)

Background: Self directed learning readiness is an essential feature that should be possessed by medical students. Competency Based Curriculum that bachelor students undergo emphasizes self directed learning. This background will support learning in clerkship phase which is more self directed learning. Student readiness for self directed learning will also influences preceptor's approach in conducting clinical preceptorship.
Summary of work: From 83 respondents of seventh semester of Faculty of Medicine Universitas Pelita Harapan who will enter clerkship, data on readiness to do self directed learning was gathered by using Self Directed Learning Readiness Scale.
Summary of results: A good self directed leaning readiness was found in 91,57% of sample. The percentage increases compared to semester one which was 91,18%. A good self management was also found in 90, 36% respondents; willingness to conduct self directed learning was found in 96.39% respondents; and good self control in learning in 96.39%.
Conclusions: Respondents are ready to apply self directed learning in clinical clerkship phase, supported by delegative type of perceptorship.
Take-home messages: A customized preceptorship style is essential in accommodating student based on their self-directed-readiness.

8Z/2
Coping with Your Supervisor - What Students Really Learn in Clinical Placements

Matilda Liljedahl (Karolinska Institutet, Centre for Medical Education, LIME, Stockholm 171 77, Sweden)
Lena Engqvist Boman (Karolinska Institutet, Centre for Medical Education, LIME, Stockholm, Sweden)
Charlotte Fält Porthén (Karolinska Institutet, Centre for Medical Education, LIME, Stockholm, Sweden)
Klara Bolander Laksov (Karolinska Institutet, Centre for Medical Education, LIME, Stockholm, Sweden)

Background: The view of learning in workplace learning has during the last decades changed from a cognitive view to a cultural approach. Only a few previous studies have explored the impact of the environment on student learning culture. Learning culture is here defined as "the values and norms of teaching and learning that exists within a group".
Summary of work: The aim was to explore medical and nursing students´ experiences of clinical placements to be able to describe their learning culture. A phenomenological research approach was chosen. Semi structured interviews were conducted with seven medical students and eight nursing students. The interviews were analysed with qualitative content analysis.
Summary of results: Student understanding of learning in clinical placements could be described on three levels; formal, manifest and latent. The formal level includes their approach to clinical placements, the manifest level includes their perception of clinical placements and the latent level involves the influences clinical placements had on their professional development. For instance, the difficulties they experienced, e.g. the relationship to their supervisor, made them develop useful skills for their future profession. Through the mirroring process between the two groups of students it was possible to discover aspects of their learning that would otherwise not have been discovered in the analysis.
Conclusions: Apart from learning the explicit skills and attitudes in clinical placements, students also learn latent qualities useful in their future professional work. However, medical and nursing students learning cultures differ which have to be taken into consideration in the design of interprofessional education.
Take-home messages: The context and the social environment in clinical placements affect the students and influence their professional development.

8Z/3
Students´ feedback on hypertension clinical teaching – a comparison between two teaching models

Ricardo Tjeng (University of Beira Interior, Faculty of Health Science, Av. Infante D. Henrique, Covilha 6200-506, Portugal)
Luis Patrao (University of Beira Interior, Faculty of Health Science, Covilha, Portugal)
Edmundo Dias (University of Beira Interior, Faculty of Health Science, Covilha, Portugal)
Pedro Lito (University of Beira Interior, Faculty of Health Science, Covilha, Portugal)
Miguel Castelo-Branco (University of Beira Interior, Faculty of Health Science, Covilha, Portugal)

Background: Outpatient teaching is a good opportunity for students to learn in a clinical context. Different teaching models are described, having their own advantages and disadvantages.
Summary of work: All 4th year medical students from the Faculty of Health Science, University of Beira Interior (Covilhã – Portugal) participate in the Hypertension Clinic, during the Cardiovascular Module. In academic year 2011/2012, a "sitting-in" model (observational) was used for the learning experience; and in 2012/2013 a "team-member" model (active) was chosen. The aim of this study is to compare medical students´ feedback

between these two different approaches to hypertension clinical teaching, including clinical feedback, individualization, relevance of the experience, activity, preparation, motivation, expectations, positive and negative aspects of the outpatient teaching. On-line evaluation form was sent to all those students, with rating and open questions.
Summary of results: Students´ feedback and data analysis are scheduled for April, 2013.
Conclusions: Different approaches to outpatient teaching can be used with pros and cons. Students´ feedback of the learning experience is important for the development and/or choice of the model used for clinical teaching. Models where the students have a more active role, and other characteristics (e.g. feedback) may encourage them to make deeper reflection and learning.
Take-home messages: A move towards FAIR teaching model in clinical setting can be set even on already ongoing activities.

8Z/4
Improving Confidence and Competence in Electrocardiogram Interpretation for Undergraduate and Postgraduate Medical Trainees in a UK District General Hospital

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CJ McAloon (Worcester Royal Hospital, Cardiology, Worcester, United Kingdom)
S Gill (Worcester Royal Hospital, Medicine, Worcester, United Kingdom)
J Trevelyan (Worcester Royal Hospital, Cardiology, Worcester, United Kingdom)

Background: ECG interpretation is central to clinical training, however postgraduates do not interpret common ECGs to the desired level. This lack of competence may impact patient care. Our study compares the effectiveness of two learning strategies to improve competence and confidence in ECG interpretation.
Summary of work: A prospective randomized study was performed comparing learning strategies in two cohorts: undergraduate 3rd year medical students and foundation year one (FY1) doctors. Both cohorts had blinded randomization to either the focused teaching program (FTP) or self-directed learning (SDL). Volunteers completed a questionnaire on confidence and competence in ECG interpretation before and after intervention, and completed an ECG multiple choice question (MCQ) paper after intervention.
Summary of results: 21 FY1s and 25 3rd year students participated. Following intervention, 100% (10) FY1s and 92% (12) 3rd year students in the FTP groups felt more confident interpreting ECGs compared to 23% (3) and 25% (3) respectively in the SDL groups. Specific ECG interpretation confidence improved for both learning strategies; the FTP groups showed greater improvement. The 'Hyperkalaemia' ECG demonstrated the greatest improvement for 3rd year students with

none being confident before; following intervention 69% (9) FTP group were confident compared to none in the SDL group. The 3rd year FTP group demonstrated a significant difference in successfully interpreting 'Ventricular Tachycardia' (p= 0.0469) and 'Narrow Complex Tachycardia' (p= 0.0094) compared to the SDL group.
Conclusions: Our study demonstrates improvement in confidence and objective skill levels of ECG interpretation especially at the undergraduate level.
Take-home messages: A focused teaching program shows greater improvement than self-directed learning alone.

8Z/5
Electrocardiography clinical teaching – Hands on it

Pedro Lito (University of Beira Interior, Faculty of Health Science, LAC - Clinical Skills Lab., Av. Infante D. Henrique, Covilhã 6200, Portugal)
Ricardo Tjeng (University of Beira Interior, Faculty of Health Science, LAC - Clinical Skills Lab., Covilhã, Portugal)
Bruno Valentim (University of Beira Interior, Faculty of Health Science, LAC - Clinical Skills Lab., Covilhã, Portugal)
Filipe Patricio (University of Beira Interior, Faculty of Health Science, LAC - Clinical Skills Lab., Covilhã, Portugal)

Background: There is no better place or model to teach. However, there is a better place or model to learn for each student. Allowing students different styles, methods, and opportunities increases their engagement and motivation.
Summary of work: 2nd year students from our medical school participate on Electrocardiography (ECG) program level 1. In 2012/2013 different methods/models were used to introduce basic ECG contents: webinar presentation, small groups discussion in the Clinical Skill´s Lab, and practice with feedback in clinical context. The objectives of this study is to get medical students´ feedback, to find out if there´s a preferred method/model and to understand the advantages and disadvantages of chosen models. On-line questionnaire form was sent to all these students, with open questions.
Summary of results: The majority of 2nd year medical students can´t choose just one method/model of teaching. However they preferred practice on clinical context, considering that they quickly integrate theoretical contents and technical execution. Practice in a clinical environment in early years is desired by all students.
Conclusions: Using different methods to teach increase the overall learners' interest. All models were useful, although performing it in a clinical context seems to be preferred.
Take-home messages: Offering students different methods/models to learn, increase their motivation, taking into account each other preferences

(individuality). Clinical context practice is important to show relevance of the skill.

8Z/6
Outcome of Self–EKG Examination and Interpretation by Fourth-year Medical Students, Medical Education Center, Chiangrai Prachanukroh Hospital,Thailand

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Sopita Khankeaw (Medical Education Center, Chiangrai Prachanukroh Hospital, Chiangrai, Thailand)

Background: Electrocardiography (EKG) is an important test for cardiac problem diagnosis. Studying basic EKG interpretation is 2 hours class time for fourth-year medical students. Practice in self–EKG testing and interpretation may help them to better understanding. This study aimed to assess whether practicing self–EKG testing and interpretation helps students to improve their understanding of EKG testing and interpretation.
Summary of work: This is a descriptive analytic prospective observational study. After finishing the basic EKG class, the teacher assigned volunteer medical students to do self-EKG examination and systematic interpretation, and to study all anomalies detected. Those students then presented their EKG results and the teacher discussed and commented on them. The assessment for OSCE was compared with students who did not do self-EKG examination.
Summary of results: 118 fourth-year medical students were enrolled between 2008-2012. 94 students, did self-EKG examination and interpretation. In this group, it was found that the EKG test results showed that 80 students (85.1%) had minor abnormal and/or normal variations. After studying their own EKG tests, 93.6% showed better understanding of EKGs. The group which had practiced self–EKG testing and interpretation had OSCE examination mean score of 52.6% in EKG reading and 50.4% in EKG interpretation. In contrast, the students who had not practiced self–EKG testing had OSCE mean score of 30.2% and 30.6% respectively (p=0.06).
Conclusions: Self–EKG examination and interpretation improved the ability of medical students to interpret EKGs.
Take-home messages: Learning EKG minor abnormality /variant from own EKG is easy and useful method.

8Z/7
Introduction of the Student Report Activity for Fourth Year Medical Students

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Nadim El Chakhtoura (American University of Beirut Medical Center, Internal Medicine, Beirut, Lebanon)
Muriel Ghosn (American University of Beirut Medical Center, Internal Medicine, Beirut, Lebanon)
Ayman Hallab (American University of Beirut Medical Center, Internal Medicine, Beirut, Lebanon)
Khalil Anouti (American University of Beirut Medical Center, Internal Medicine, Beirut, Lebanon)

Background: The Department of Internal Medicine at the American University of Beirut Medical Center conducts daily Morning Report for the housestaff officers. Since 2011, we introduced a similar activity geared towards fourth year medical students during the Internal Medicine Clerkship. The objective of this activity is to enhance several skills, including self-learning, search for evidence-based medicine, and presentation skills.
Summary of work: Each student selects a clinical case for presentation in the presence of a faculty preceptor. The student starts by introducing the chief complaint and students from the audience elicit questions about the history and physical examination. The presenting student then guides the discussion of the differential diagnosis, and presents a review of the most recent literature about the topic. Students are evaluated based on the completeness of the history and physical examination, the breadth and accuracy of the differential diagnosis, the appropriateness of the literature presented, and on presentation skills. At the end of the academic year, we conducted a survey among medical students to get feedback about the educational value of the student report activity.
Summary of results: A total of 90 students completed the survey. 96.3% of students thought that the preceptor coordinated the activity well. 89.0% of students thought that the activity helped them improve their self-learning skills and 79.3% thought that it promoted the practice of evidence-based medicine. In addition, most students thought that the student report helped them identify gaps in their knowledge (92.7%), their presentation skills (82.9%), and their teaching skills (78.0%). Finally, 51.2% of students rated the overall educational value of student report as excellent, and 30.5% as very good.
Conclusions: The student report activity for clinical students has been very well received by students and has helped them improve their skills.
Take-home messages: Student-centered educational activities are very valuable and promote independent learning.

8Z/8
An evaluation of the ambulatory part of the final year at the Medical Faculty Mannheim

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Background: Ambulatory patient care-setting is increasing in Germany due to structural and financial reasons, but also according to patients wishes. Several characteristics in ambulatory care-setting are distinct from in-patient-setting. Traditional medical education in Germany did not address this specific situation. In 2011 we therefore established a mandatory ambulatory patient care-setting part (12 weeks) during the clerkship year at the Medical Faculty Mannheim. We were interested to know how satisfied students are with this newly established part of the final year compared to other mandatory and elective subjects.
Summary of work: 119 students answered an anonymous online-questionnaire developed by Glahn (2011) with validated 5-point Likert-scales concerning satisfaction, mentoring and learning success of all four parts of their clerkship year. Rating of five is the best rating. Student-Newman-Keuls-test was conducted as post-hoc -test.
Summary of results: Return rate was between 50-70%. Students were as satisfied with ambulatory patient care-setting (M=4.0) as with their elective subjects (M=3.7). Mentoring in the ambulatory patient care-setting (M=4.2) was rated even better compared to all other subjects (M=3.3 resp. M=3.7). Learning success was rated similar comparing elective and mandatory subjects (M=4.0).
Conclusions: Even though ambulatory patient care-setting is mandatory students are very satisfied and feel well mentored. In future we have to take a closer look at the reasons for this and the implications for other subjects in the final year. Finally, a follow-up is needed to see if this new training focus ultimately leads to more out-patient doctors.
Take-home messages: The ambulatory part of clerkship is a satisfying way to teach ambulatory care.

8Z/9
Developing 'clinical presence' in medical students

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Background: 'Clinical presence' is an overall impression made on a patient or colleague [BMJ 2013]. We have previously shown our clinical presentation workshops significantly improve medical students' self-assessed ability to present to a colleague. We hypothesised this would improve clinical presence therefore outcomes in objective structured clinical examinations (OSCEs).
Summary of work: Medical students attended history (n=35) and examination (n=25) presenting workshops, assessing their confidence and effectiveness in presentation (0-10 Likert score) before and after. Students (n=104) completed history and examination stations in an OSCE and overall marks (0-5) were correlated to the number of workshops attended.
Summary of results: Self-assessed presentation confidence and effectiveness improved significantly after attending the workshops (average increased confidence and effectiveness scores 1.6, 1.7 respectively, $p<0.0001$). Attending did not have a significant effect on OSCE average marks (3.6, 3.7, 3.6 when attending none, one or two workshops respectively).
Conclusions: Our workshops significantly increased self-assessed ability to present however did not correlate with OSCE results, perhaps due to study power and confounding factors. Further studies may determine whether presentation workshops alone improve clinical presence and examination outcomes. However, given our data, opportunities for additional ways of developing clinical presence have emerged.
Take-home messages: Developing 'Clinical Presence' is an exciting aspect of medical education which improves student, patient and interprofessional relationships. This maximises learning opportunities and drives future efficiency in the healthcare system. We aim to develop students' clinical presence by introducing novel scenarios including mock student-led ward rounds and patient ownership ideas.

8Z/10
Role of Instructor Nurse for Training Medical Students in Minor Surgical Procedures

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Background: Patient safety is a hot topic in medical education. For minor surgical procedures medical students may or may not be trained and closely supervised by teaching surgeons. After a brief, observing live-demonstration and model practices, it is not known how students could acquire surgical skills. They might do it by themselves or be trained by instructor nurses.
Summary of work: The 28 students of surgical rotation were asked about what procedure they did and who were their instructors.

Summary of results: The 13 fourth year students performed 68 procedures. They did it by themselves and under supervision of surgeons and nurses 6(8.8%), 15(22.1%) and 47(69.1%) respectively. The 7 fifth year students performed 52 procedures. They did it by themselves and under supervision of surgeons and nurses 2(3.9%), 14(26.9%) and 36(69.2%) respectively. The 8 sixth year students performed 78 procedures. They did it by themselves and under supervision of surgeons and nurses 1(1.3%), 74(94.9%) and 3(3.8%) respectively. The total 198 procedures were done under supervision of surgeons 103(52.0%), nurses 86(43.4%) and only 9(4.6%) were done by themselves.

Conclusions: The results strongly indicated that instructor nurses were also one of the main stakeholders as surgeons. In hospital of limited teaching surgeons and surgical residents who did not have enough time to teach medical students, these certified, skillful and senior nurses were excellent supervisors because they had learned how to supervise and feedback students in doing procedures from surgeons. With basic psychomotor skill training, they could be even better supervisors for students in minor surgical procedures.

Take-home messages: A prospective study will be done to clarify how much a role of instructor nurses in surgical training for medical students, and also further identify which type of minor surgical procedures need to be trained and supervised by teaching surgeons or instructor nurses, and which one they could do it by themselves.

8Z/11
Adding an Educational Prescription to SNAPPS

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Jeremiah Menk (University of Minnesota, Medicine, Minneapolis, United States)

Background: SNAPPS is a six-step, learner-centered technique for student case presentations. We evaluated the addition of a PICO-formatted educational prescription (Patient-Intervention-Comparison-Outcome) to the final SNAPPS' Select step. We hypothesized that this would foster high quality questions and answers.

Summary of work: Students were instructed to use educational prescriptions as a complement to their SNAPPS case presentations at the bedside. The educational prescriptions were collected and coded regarding 4 outcomes: topic of uncertainty, PICO conformity score (8-point scale), presence of an answer, and quality of the answer (directness, presence of evidence, and preferred management).

Summary of results: A total of 191 education prescriptions were coded, of which 190 (99%) included a question; of which 176 (93%=176/190) included an answer. Therapy questions constituted 59% (112/190) of the questions generated by the students while providing care for their patients; 19% (37/190) were related to making a diagnosis. Three fifths of the questions (61%=116/190) were scored either 7 or 8 on the 8-point conformity scale. The quality of the answers varied, with 37% (71/190) meeting all three criteria for high quality. There was a positive correlation between the PICO conformity score and the quality of the answers (Spearman Rank-Order Correlation Coefficient =0.726; p<.001).

Conclusions: This technique was easily integrated into the inpatient clerkship structure and guaranteed that virtually every case presentation had a well-formulated question and quality answer.

Take-home messages: SNAPPS+ could promote lifelong learning skills by teaching students to ask clear questions regarding their self-identified areas of uncertainty, which in turn can lead to quality answers.

8Z/12
Clinical skill evaluation of undergraduate medical students in management of pregnancy, delivery and newborn

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Background: To evaluate process and education outcome in management of pregnancy, delivery and newborn in Faculty of Medicine Universitas Indonesia.

Summary of work: Cross sectional study to evaluate the process and education outcome in undergraduate FMUI students who receive women's health module from August to October 2011. Variables that were evaluated are clinical competence in antenatal care, normal delivery and newborn evaluation. We also evaluated number of cases, length of supervision, level of confidence and satisfaction among the students.

Summary of results: There were 66 students who completed the evaluation. Median numbers of antenatal care and delivery per student were 31.5 and 4 cases respectively. Mean length of supervision in a week was 4.4 hours. From clinical competence evaluation percentage of students that were competent in antenatal care, normal delivery and newborn evaluation were 97%, 97% and 74.2% respectively. Further analysis

showed that there were no associations between number of cases, length of supervision and clinical competence. Most of the students stated that they are confident in assisting normal delivery and newborn evaluation.

Conclusions: A good education process had been conducted and clinical competence can be achieved by the majority of undergraduate students.

Take-home messages: High involvement of students in managing patients will help in achieving clinical competence.

8Z/13
"The entire consultation" Maximising and integrating individual consultation skills in a simulated encounter

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Background: Students conventionally are taught consultation techniques in a segmented fashion. History taking, consultation skills and explanation are often taught separately to examination and diagnostic reasoning. Student experience of a real life consultation typically occurs as a bystander in the clinical setting, and they rarely have an opportunity to practice the entire consultation until they qualify.

Summary of work: In Swansea, student groups undertake a whole patient consultation with a live simulated patient. They conduct an interview, before proceeding to examine patient, specifically looking for and seeing clinical signs which may be expected from the information gleaned in the interview. Discussion builds on clinical reasoning principles, before the students contemplate potential diagnoses and explain the diagnosis and management plan to the patient.

Summary of results: Questionnaire design was used to explore student perception of this method, in order to identify whether or not the continuity adds anything to their learning of clinical techniques. Thematic analysis, which is ongoing, was used in order to identify themes in the data. Emerging themes include an understanding of the consultation process, consolidation of learning, heightened realism and understanding of importance of continuity.

Conclusions: Students value the ability in being able to undertake a full consultation and put into practice components of the consultation which they have learned separately in order to understand the consultation and diagnostic reasoning process. More details will be provided.

Take-home messages: Medical students in their first years value the worth of conducting an entire simulated consultation.

8Z/14
Basic Life Support is effectively taught in groups of three, five and eight students per tutor in a prospective, randomized and double-blind simulation study

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Background: Teachers and participants commonly believe that teaching in small groups is superior compared to teaching in larger groups. We investigated the impact of different group size on the training of BLS skills.

Summary of work: Medical students (n = 74) were randomized to BLS courses with three, five or eight students per tutor. Students received a standardized BLS training while we video-recorded teaching observations. Before and after the training, all participants performed an Objective Structured Clinical Exam (OSCE). We analyzed the BLS quality using a checklist (pass level 75%) and measured the chest-compression parameters with a high-fidelity CPR manikin.

Summary of results: Checklist pass-levels were comparable between groups of three, five and eight students per tutor at follow-up visit (93%, 100% and 96%, respectively). Chest compressions showed comparable compression depths. Mean compression rates were mostly between 100-120/min with some shortcomings in the eight students group. Students in groups of eight classmates asked fewer questions (p < 0.001), had less training time (p = 0.02), conducted more irrelevant conversations (p < 0.001) and had a lower self-assessment than groups of three students per tutor (p = 0.03).

Conclusions: Although resuscitation checklist scores were comparable high for all group sizes, smaller groups had certain advantages in teaching interventions and effective learning time. However, these advantages could just provide "in-details" knowledge and might not be necessary to learn and perform relatively simple tasks as BLS skills.

Take-home messages: BLS skills can be effectively taught in groups of three, five and eight students.

8Z/15
Systematic Review of Bedside Teaching Compared to Other Clinical Teaching Methods for Undergraduate Medical Students and Postgraduate Clinicians

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Background: Bedside teaching can be an effective educational tool in medicine. The setting provides opportunities to expose the learner to knowledge and skills difficult to teach in a classroom environment. Despite this, teaching at the bedside is declining. This systematic review examines studies evaluating the effectiveness, and learner and patient perceptions of bedside teaching in comparison to other teaching modalities.
Summary of work: Embase and Ovid MEDLINE searches were performed to identify English language primary research articles from January 1980 - July 2012, comparing bedside teaching to teaching away from the bedside. A free text search of all fields used the following search terms: "bedside teaching", "bedside learning", "bedside education" and "bedside tuition". Reference lists of the included articles were also manually searched for additional citations. Relevant study details were abstracted.
Summary of results: The electronic database search produced 236 titles. Following review, 14 research papers were included based on predetermined criteria. Five papers compared bedside teaching to other settings "objectively" using examinations; five studies examined medical student preferences, three studies examined the preferences of doctors in training and six studies evaluated patient preference.
Conclusions: Bedside teaching can be a useful modality of clinical teaching especially with careful selection of the teaching audience and topic. Bedside teaching is less useful for teaching specific invasive clinical skills or teaching qualified doctors.
Take-home messages: Medical students and doctors in training prefer bedside teaching when directly compared to most teaching modalities. Learners report discomfort presenting and being questioned in front of the patient, however patients report higher satisfaction when presenting occurs at the bedside.

8Z/16
Readiness Scale for Clinical Training

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Background: The clinical learning environment is a rich learning environment where students integrate their skills in solving real problems. It presents the student with a learning environment that includes interaction with the clinical instructor and patients. It is therefore important that students enter clinical training with adequate preparation. This study aimed to develop a self-assessment scale designed for pre-clinical students, which will measure their own readiness for clinical training.
Summary of work: A Readiness Scale for Clinical Training was developed based on results of focus group discussions and constructs from literature.   The scale was administered to 271 pre-clinical students of various health professions courses in different Philippine schools.   The reliability of the scale was determined, and a component factor analysis was done to develop the final version of the scale.
Summary of results: The initial 60-item version revealed a Cronbach alpha of .766. Four items were deleted based on the item-total analysis, increasing the Cronbach alpha to .843. A KMO measurement of sampling adequacy of .804 rendered the sample adequate for factor analysis. Factor loading was analyzed using components with Eigenvalues >1.5. Using the Equamax rotation, 8 component factors were extracted, and ten items with coefficients <.4 were deleted.   The Cronbach's alpha of the 46-item final version of the scale was computed at .881.
Conclusions: The Readiness scale for Clinical Training is a reliable tool for measuring the readiness of pre-clinical students for training in the clinical setting. It can help determine areas where students may need additional support, counselling, or remediation.
Take-home messages: It is important to look for measures to assess student needs aside from testing. A self-assessment measure of the student's readiness for clinical training will be useful to students, teachers and institutions.

8Z/17
Implementing standardised training and assessment for spirometry in post-graduate respiratory medicine using the framework 'Miller's model of clinical competence'

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Background: Training and assessment in post-graduate medical education, specifically within respiratory medicine, is not well structured or developed across Europe. In an effort to address training inconsistencies in specific areas of respiratory medicine, HERMES (harmonised education in respiratory medicine for European specialists) was established to achieve harmonization of education and certification.
Summary of work: Spirometry is a test used to assess lung function. A training model was developed based on Miller's model of clinical competence in order to establish a quality assessment process. This model incorporates the use of a European online MCQ test, an

assessment portfolio as well as direct observation of procedural skills (DOPS). In order to disseminate at a European level a critical aspect to ensure project success is to recruit and train European teachers. To accompany this model a train-the-trainer was established incorporating small group hands on learning, interactive discussions and role-plays.

Summary of results: The goal of this project is to establish standardised documents and activities in the training and certification of spirometry testing. This model was designed to train allied health professionals as well as in-training specialists in respiratory medicine. The model is now being adopted in other specialist areas to teach and assess clinical competence of specific skills within the curricula.

Conclusions: The process will be overseen by the ERS HERMES assessments and board committee. The first training programme and certification of Level 1 and Level 2 will be disseminated from October 2013 – March 2014. Further challenges will need to be considered as training and certification will be disseminated at a European level.

Take-home messages: Translating theory into practice: the design of an applicable and acceptable training and assessment model for post-graduate medical clinical skills.

8Z/18
Factors associated with anesthesiology grade assignments in fifth year medical students

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Background: The anesthesiology rotation for 5th year medical students is perceived as short, enjoyable but difficult especially at the examinations. They are scored by many sources; self-directed learning, oral presentation, cognitive skills, attitude and clinical skills at the bedside teaching in operating theatres, and the paper examinations. We would like to know which components have an effect in grade assignments and to see whether the period of their rotation across the academic year has an effect on their final grade or not.

Summary of work: The final scores and grades of 470 medical students in 2010 and 2011 academic year were reviewed. Then the scores were analysed with principle component factor analysis with varimax rotation. Then each factor component was calculated and entered to linear regression with an independent variable as grade of each student.

Summary of results: The rotated components yields seven components; as self, decision, situation, skills, time of the year, preparation and problem. The final model shows that five components excluding time of the year and preparation are associated with the student grade outcome.

Conclusions: Grade assignment in anesthesiology is associated with student clinical skill, decision making in patient management, and preoperative evaluation. There is no advantage of later rotation time over earlier rotation in the academic year.

Take-home messages: Successful anesthesiology grade assignment is dependent on all student skills both clinical practice and active participation in case discussion to gain a good decision making for patient management.

8AA Posters: Mobile Learning/Learning Resources
Location: Terrace 2, PCC

8AA/1
MeCuM-Memo, a new flashcard-based e-learning tool for students and teachers

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Background: MeCuM-Memo is a flashcard-based e-learning tool helping students to structure their self-studies. It comprises of a mediawiki related platform giving students the opportunity to edit and share their flashcards online with other students (community-based learning) and a software client to edit and study them offline.
Summary of work: We have developed a new version of our pre-existing software and released it in November 2012 for medical students of the LMU Munich. Additionally we have been encouraging students and teachers to enhance the existing stock of flashcards to perfectly fit the Curriculum of the LMU. We evaluated MeCuM-Memo in February 2013. Our survey consisted of 15 multiple-choice and open questions. 297 students who attempted to download our client were asked to participate, 44 students completed the survey.
Summary of results: Since our release in November 2012 we have been registering 297 software downloads (February 2013). The stock of flashcards actually consists of 1272 cards which have been written by medical students of the LMU.
Conclusions: Taking the presented numbers and our survey results into account, we conclude that MeCuM-Memo encourages a part of students to study, but yet not all. A reason for a positive feedback seems to be our "easy-to-use" program, while a negative feedback might be explainable by technical barriers to access the program.
Take-home messages: MeCuM – Memo is a new flashcard- and community-based e-learning tool which might have the ability to structure and ease students' self-studies. To address an even greater part of students, further technical improvements have to be made.

8AA/2
To tweet or not to tweet: An evaluation of Twitter epilepsy social network

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Background: Twitter is a popular free social networking/ microblogging tool that allows its users to describe their status via short messages. This study examined the activity of Twitter epilepsy social network accounts.
Summary of work: Tweet archivist (http://www.tweetarchivist.com/) was searched by three researchers using two key words "Epilepsy" and "Seizure". The research identified 5603 activated Twitter epilepsy accounts in the English language. Recent account activities were analyzed.
Summary of results: The authors found 1,522 active Twitter accounts. The accounts had a median of 548 followers and 67% re-tweets per account and 38% were linked to Facebook, or other media. 46% of accounts had >100 tweets. Posted content was largely inconsistent with authentic clinical information; 0% linked to pharmaceutical companies sites and advertising, and 56% had tweets on non-epilepsy issues. Contents of the tweets were categorized into: personal disclosure, sharing knowledge, social issues, personal views, and advertising. Only 9% twitter accounts were linked to professional societies.
Conclusions: Despite the 140-character limit, twitter was successfully used among epilepsy social network in sharing their news and reflecting on their life.
Take-home messages: Twitter epilepsy social network accounts need to be monitored by professional societies to enhance the educational benefits of such tools.

8AA/3
Short Message System (SMS) revisited

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Background: In a survey regarding the use of technology as a mean of communication with the students, the Faculty of Health, Aarhus University came out worst among the four faculties. The University allotted funds to projects that could better the situation, and one of the accepted projects was the short messaging system.
Summary of work: To facilitate better communication, we tested the use of text messages. The system consists of two parts: one engine for sending the messages, and one backend where lectures could construct and send

messages. The backend was developed in-house, whereas the engine was purchased from a company. One undergraduate course was chosen as pilot test. The students answered some questionnaires, and provided feedback at the end of the course duration.

Summary of results: The students rated the service highly. Their main interest was to get information about cancellation of classes, moving of lectures and information about exams. Unfortunately not all messages reached their intended recipients (success rate 91%).

Conclusions: Text messages are an effective tool to provide information about sudden changes in the schedule or cancellation of a lecture. Text messages fill an important niche which, combined with other means of communication, provides a more coherent communication service to the students.

Take-home messages: Short messaging system might not be a cutting-edge technology, but in many circumstances it is the technology called for, when mass communication of abrupt changes is needed.

8AA/4
3D virtual table in anatomy education

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Background: The 'Anatomage' is a 3D virtual human anatomy table, with touchscreen functionality, where it is possible to upload CT-scans and digital. Learning the human anatomy terminology requires time, a very good memory, anatomy atlas, books and lectures. Learning the 3 dimensional structure, connections and intersections can be supported by technology like the Anatomage.

Summary of work: Primo 2013 Aarhus University acquired a digital table to use in the anatomy classes at the university. Until now the preparations for the inclusion of this table have been ongoing, and from September onward this table is going to play a bit part in the anatomy education.

Summary of results: The preparation where done in collaboration with a second-year medical student. His job was to ensure, at that material was provide in Danish, and grow accustomed to the technical use of the table. Alongside this preparatory work we invited people in key positions to take a look at the table and figure out, if this was something they could use.

Conclusions: Without prior knowledge about anatomy you won't get much from this table. What it provides is a 3D understanding, which cannot be as easily gained from textbooks.

Take-home messages: Good preparation is key to a successful inclusion of new technology within an old classical subject. Furthermore the technology should be recognised as supplementing and reinforcement of the learning environment.

8AA/5
Five problems, one solution: utilising online resources to meet the needs of disparate groups of learners

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Background: Western Australia covers 2.5 million square kilometers, with one tertiary hospital postgraduate medical education department servicing the education and training needs of more than 50 pre-vocational trainees, 35 specialist registrars and 120 community based obstetric care providers. With limited teaching resources available, single resources, such as videos of lectures given in the tertiary hospital setting, were considered for adaptation for use by different groups of learners utilizing different features of the online learning system.

Summary of work: Utilising one learning management system (MOODLE – Modular Object Oriented Dynamic Learning Environment) five separate courses were created, each aimed at a defined group of learners.

Summary of results: Uptake rates for the courses aimed at rural and remote trainees were particularly high. Informal feedback regarding the online resources has been extremely positive.

Conclusions: Frequently in education separate resources are created whenever the learning needs of a new group are identified. This is not always required, as different aspects of the same resources can be used to accommodate the needs of different groups. Cross-posting relevant resources allowed for specific targeted education without the necessity for duplication. Formal evaluation of the different MOODLE courses is currently underway.

Take-home messages: Online technologies and cross-posting of resources allow for tailored education to be provided across different groups of learners in an efficient and timely manner.

8AA/6
Facilitating Learning On-line so the e-patient does NOT Die!

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Background: The ability to handle acute medical emergencies is a core curriculum all doctors must have. Ensuring this is well taught is important for all residents. Difficulty in attaining 100% attendance with the current didactic classroom teaching approach, due to exigencies of service and duty hour constraints motivated Faculty to explore e-learning and investigating: Would an online e-learning module on core acute medicine lead to easy, universal access by residents, in a safe environment? Would blended learning improve educational outcomes?

Summary of work: An interactive and evaluative on-line module was designed and distributed via our learning management system. A total of thirteen acute medicine interactive real life scenarios with multiple choice questions were created. Content was provided by content experts. Face-to-face sessions with dedicated faculty to clear further doubts followed. 104 residents attempted this module within one month of joining the hospital.

Summary of results: Improvement in the attendance of face-to-face sessions. High feedback scores on meeting learning objectives. Focused group discussions revealed that the blended approach to learning was well received. They appreciated the face-to-face discussions following the eLearning for clarifications and reinforcement of their learning. Faculty appreciate that pre diagnostic test of their entry level (pre test scores) helped in addressing the training gap.

Conclusions: Better attendance, high feedback scores and focused group sessions suggest improved educational outcomes. Important questions remain; learner's preferred learning environment and attitudes towards e-learning and more importantly, whether this mode translates to improved patient outcomes warrants further study.

8AA/7
Learning medical terms with the wiki

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Background: The development of Web 2.0 enabled a generation of communities to share content, creativity and resources through social networks. Regardless of the diversity or geographic location, the wiki is a content management system with these features that enables collaborative work.

Summary of work: As part of a strategy to aid student learning of medical terms, the Department of Integration of Medical Sciences of the UNAM created a wiki where medical terms addressed each clinical case discussed in this course in the first year of College.

Summary of results: Collaboratively, the 1121 students developed a wiki hosted in Wikispaces. Unfamiliar and important terms in each of the 4 clinical cases that were reviewed during the first year were entered into the wiki. With the help of crosswords and word searches, students reinforced the terms placed in the wiki.

Conclusions: The wiki is a simple, flexible and powerful tool to develop collaborative work. It is useful in the preparation of glossaries and lists of medical concepts and images that promote skills development of Curriculum 2010.

Take-home messages: A wiki aids the learning and retention of new medical terms of freshmen in the college.

8AA/8
TiHoVideos - Learning of skills supported by YouTube videos

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Background: In 2012 the University of Veterinary Medicine Hannover Foundation (TiHo) has established a center for clinical skills "Clinical Skills Lab" (CSL) with funding of the Federal Ministry of Education and Research. Accompanying the CSL stations videos were produced and allocated on youtube.

Summary of work: The TiHo created an own video-channel called "TiHoVideos" on the video-sharing website youtube (http://www.youtube.com/user/TiHoVideos). The first videos were uploaded on youtube already in 2012 before the CSL-opening in February 2013. New videos are created continuously, regularly uploaded and are available on youtube.

Summary of results: An acceptance and usage analysis is to be performed after six months. Also, the number of subscribers, the number of calls and the demographic distribution will be presented in this context. Currently available are a total of 26 videos on the TiHo-channel, of which 15 are CSL-videos.

Conclusions: Students can study these videos at home, or even directly in the CSL on e.g. their mobile phone, tablet PC or notebook. They have an opportunity to make themselves familiar with the procedure for the conduct of a clinical skill. Depending on the results of the acceptance and usage analysis, the video production will be optimized and adapted.

Take-home messages: Learning of skills can be supported usefully with online videos.

8AA/9

Analysis of YouTube videos on physical examination of the gastrointestinal system

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Background: A number of studies have evaluated the educational contents of videos on YouTube. However, little analysis of videos covering physical examination has been made. This study aimed to analyze the YouTube videos covering the physical examination of the gastrointestinal system.
Summary of work: During the period from 2 November to 2 December, 2011. YouTube was researched by three assessors for videos covering the clinical examination of the gastrointestinal system. Only relevant videos in the English language were identified. For each video, the following information was collected: title, authors, duration, number of viewers, and total number of days on YouTube. Using criteria comprising content, technical authority and pedagogy parameters, videos were rated independently by three assessors and grouped into educationally useful and non-useful videos.
Summary of results: A total of 840 videos were screened and only 24 were found to be relevant to the gastrointestinal examination. Further analysis revealed that 9 (37.5%) provided useful information on the gastrointestinal examination; scoring (mean ± SD, 15.0 ± 0.00). The other videos 15 (62.5%) were not useful educationally, scoring (11.4 ±2.31). The differences between these two categories were significant; p <0.001. The concordance between the assessors on applying the criteria was 0.89, with a kappa score > 0.86.
Conclusions: The scoring system utilized by this study is simple, easy to apply and could be used by other researchers on similar topics.
Take-home messages: Despite the variability in the quality of YouTube videos, there are good videos covering the gastrointestinal physical examination that can be used as a learning resource.

8AA/10

Can YouTube be used as a Learning Resource for Epilepsy?

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Background: Epileptic seizures can be categorised into different subgroups largely by observing the behaviour of a patient during an attack. YouTube contains hundreds of videos claiming to capture specific seizure events. This study assessed the accuracy of these videos and their potential use as a learning tool in helping students recognise different epileptic seizures.
Summary of work: A YouTube search was performed for 8 different seizure types (Tonic-Clonic, Tonic, Atonic, Absence, Myoclonic, Simple-Partial, Complex-Partial, Pseudoseizure). The top 25 results for each search term were retained and videos that showed human-beings experiencing apparently abnormal motor events were included for further analysis. Two consultant epileptologists then rated each video for technical quality, the most likely expert diagnosis, and whether the video could be recommended as a good example for student learning.
Summary of results: Of the 200 videos analysed, 114 met inclusion criteria. Fewer than half of the remaining videos were judged by expert assessors as showing the correct seizure type. Furthermore, fewer than a third of videos were rated as clear enough examples to recommend as a learning resource for students. These findings were not influenced by the technical quality of the videos as the vast majority were rated as adequate for assessment.
Conclusions: The majority of videos on YouTube claiming to show specific seizure subtypes are inaccurate. However, a small group of videos show clear examples that could be used by an expert teacher to demonstrate specific seizure types for students.
Take-home messages: YouTube should not be recommended as a learning tool for students to look up seizure patterns. Instead, expert teachers should recommend individual videos from the YouTube archive.

8AA/11

OPTIMED: Supporting Healthcare Professionals' Educational Continuum through an Online Self-Assessment Tool

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Background: Many educational programs are developed based on needs assessments that identify only perceived gaps in care. OPTIMED is an online, self-assessment tool designed to facilitate the identification and correction of unperceived clinical care gaps to help optimize patient management.
Summary of work: Participation rates and completed evaluation forms for practice assessment initiatives using the OPTIMED platform were assessed to determine the acceptability of the tool and its utility in assisting physicians with the assessment of clinical knowledge, integration of optimized patient care into practice and measurement of outcomes.

Summary of results: Ten practice assessment initiatives using OPTIMED have been completed. Overall, 172 specialists and 710 family physicians in Canada participated, completing a total of 8,339 patient profiles. Completed evaluation forms from 316 participants showed 98% agreed or strongly agreed the program would be valuable in promoting best practices and 97% agreed or strongly agreed the program successfully identified clinical challenges in the therapeutic field, while 70% indicated they intended to change their practice as a result of the initiative. Similarly, participating physicians indicated they would make changes to the management of 35% of the 3,745 patients for whom this question was asked.

Conclusions: The OPTIMED online practice assessment tool is acceptable to both specialists and family physicians. The tool assists physicians in identifying clinical challenges and promotes changes to practice. Completion of six OPTIMED initiatives currently in progress should confirm these results.

Take-home messages: Online self-assessment tools can help identify unperceived gaps in practice and promote behaviour change.

8AA/12
The reality of knowledge sharing by medical students

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Background: Tomorrow's doctors need to be life-long E-learners and team players. Medical Curricula emphasize active learning (AL) and collaborative learning (CL).

Summary of work: During the ENT teaching for the 5th year medical students (MS) we aimed to shift to E-learning and encourage CL. For this purpose, we sent an E-questionnaire to assess what kind of learning material MS thought should be available on the course's website and if they were willing to contribute, on a voluntary basis, to the production of this material. Theoretical results were compared to the real contribution of the students at the end of the course.

Summary of results: 82/87 responses were received. 90% were in favor of E-learning. 70% thought that contribution to the website material will allow a better understanding of ENT specialty. 49% said they were willing to contribute to the construction of the site. MS were encouraged to provide learning resources by working in groups of 6. At the end of the course, none of the students provided learning resources.

Conclusions: Despite the fact that most studies report a high degree of student enthusiasm for CL, this cannot be assumed for all students. Our students were reluctant to do so probably because they are not convinced enough of the importance of AL and CL. Initiatives should be taken to increase students' participation in educational management and organization by explaining the principles of adult learning and learner-centered teaching.

Take-home messages: There is a gap between what our MS say and do concerning collaborative team work.

8AA/13
Student attitudes and use of tablet computers in medical education in Helsinki

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Background: Faculty of Medicine at University of Helsinki applies PBL-curriculum. All the course materials are distributed in digital form. Students still use hardcopy textbooks in all courses and print lecture notes on paper. Only few use electronic devices during lectures. Next year, all the first year students will have an iPad, thanks to a grant from the Jane and Aatos Erkko Foundation.

Summary of work: We studied students' use and attitudes towards mobile devices in learning sessions. We specially surveyed students who used iPad and analyzed how iPad is used in learning in four levels based on publication by Goldsworthy and Vahtivuori & Masalin.

Summary of results: 77 % of students carry mobile equipment. 80% of them are willing to use them in learning sessions. All students with iPads use them pedagogical and instrumental way. Over 50% use iPads for content creation. Communicative use is common, but communal use appears to be almost non-existent.

Conclusions: Students own mobile devices, but their use is still limited mainly to personal communication, surfing in the web, reading e-books and articles. To make full educational use of these devices, faculty should take an active role in assisting the students.

Take-home messages: Mobile devices are here, and faculty is challenged to create learning environment for their efficient use.

8AA/14

Tablet computer use in self-study by medical students in the University of Helsinki

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Background: The Helsinki University Medical School received a two-year grant from the Jane and Aatos Erkko Foundation to fund tablets for 2013-2014 incoming students. The initiative aims at introducing tablets as a tool for more interactive teaching, while also providing students with a means for versatile self-study.
Summary of work: Through an e-mail questionnaire sent out to all students of the faculty, we investigated how tablets are currently used, in order to study how they can best be utilized to support learning in the future. Participants were asked to identify specific applications and resources they use, and to rate their strengths and weaknesses. Several students were individually interviewed to determine expectations and opinions on tablet use on campus. We also studied current campus IT infrastructure and the requirements for its development.
Summary of results: Tablets were used to create and share mind maps, take notes, read e-textbooks, access online medical databases, use anatomy and radiology applications and to watch learning videos. Students trust that tablets provide versatile self-directed and interactive learning opportunities. However, the use of tablets was seen as potentially distracting. Current campus network coverage was extensive but not complete.
Conclusions: The use of tablets is already providing methods for more effective learning; however, a forum should be developed for students and faculty to share learning resources and problems encountered. Campus IT infrastructure must be upgraded to allow optimal utilization of tablets.
Take-home messages: Tablets offer creative applications and methods for enhanced self-study. The Faculty should have an active role in encouraging this and providing appropriate guidance.

8AA/15

Free teaching resource: e-Handbook to accompany Microlabs for Pharmacologists

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Background: Microlabs for Pharmacologists is a free PC-based resource for teaching Pharmacology. It consists of several modules about different topics in Pharmacology, and it includes Tutorials, Simulations, Databases, Videos and Case studies. The recently deceased author of Microlabs, Professor of Pharmacology, Hendrik van Wilgenburg, gave his permission to the authors to produce an e-Handbook to accompany Microlabs.
Summary of work: The authors have recruited colleagues, Pharmacologists, across Croatia to write the e-Handbook. The first step was to write a Croatian version of the e-Handbook and to submit it to the University of Split for an official review. After a final formal recognition of the e-Handbook as a University book, the authors translate the text to English, and prepared it for free distribution on the Internet.
Summary of results: The e-Handbook is primarily focused on Simulations modules of Microlabs, virtual experiments in Pharmacodynamics (Isolated ileum) and Pharmacokinetics (Kinetic). Regarding teaching Pharmacodynamics (PD), the students are guided to draw Concentration-Response curve(s), Lineweaver–Burk and Schild plots and to determine different PD parameters, like EC50, Emax and pA2, for different agonists and antagonists, by using the provided raw data. Regarding teaching Pharmacokinetics (PK), the students are guided to draw Time-Concentration curve(s), and to estimate different PK parameters, like t1/2, Cl, Vd and AUC, for different drugs and clinical cases. For the more advanced students, or young scientists, there is a tutorial how to calculate different PK parameters, by using the provided raw data and non-compartmental analysis (NCA) approach.
Conclusions: E-Handbook about virtual experiments in Microlabs for Pharmacologists will be available as a free PDF to download, at the time of the AMEE 2013.

8AA/16

Smartphones for smarter doctors? A survey assessing medical students' attitudes towards using smartphone technology in their education

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Mark Jinks (University of Birmingham, College of Medical and Dental Sciences, Birmingham, United Kingdom)
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Background: The growing popularity of smartphones means they almost certainly have a role in medical education of the future. Few studies have focused on how smartphones are perceived by medical students – knowledge which is essential if such innovations are to become commonplace.

Summary of work: This was a cross-sectional questionnaire-based study involving medical students in years three, four and five at the University of Birmingham. Topics covered included reasons for and against owning a smartphone, benefits and drawbacks of using such a device as an educational tool, and opinions on particular areas where this technology could be introduced.

Summary of results: Data were obtained from 361 participants, representing a response rate of 32%. Fifty-nine per cent of students owned a smartphone; 37% of these reported using the device to support their learning. In most cases, students were positive towards the concept of smartphones as future educational aids, with 84% believing the devices would be useful or very useful. However, 64% thought smartphones would be too costly to implement and 62% felt such technology was not in the medical school's interest. Themes which emerged upon analysis of free text supported general findings, with students also mentioning issues such as potential for unprofessional behaviour and dependence upon smartphones.

Conclusions: It appears most medical students believe having a smartphone would be beneficial to their education, although further research into cost-effectiveness of mobile technology is necessary before smartphones are used more widely in an educational context.

Take-home messages: Generally, medical students are positive towards smartphone implementation on their course.

8AA/17
Students' attitudes and satisfaction of Medical Parasitology e-book

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Background: E-books are useful resources for educational aids which provide the learning process anytime and anywhere with multi-media methods. This study aims at producing a Medical Parasitology e-book, assessing it qualitatively and quantitatively, and obtaining the attitude of the students.

Summary of work: This cross-sectional study was carried out by the participation of 43 students from Jundishapur University of Ahwaz in 2013. Firstly, using special e-book producing software for cell phones, the course was changed into JAVA format. Then, the software was given to the students with applicable instruction. After the final exam, using a researcher made questionnaire, the qualitative and quantitative parameters of that was obtained from the students. The reliability was determined ($\alpha=0.91$). The raw data was analyzed by the SPSS18.

Summary of results: 45.7% of the students specified that the content of the e-book was the lecturer's speech in class. 52.4% indicated they were in favor of using e-books for other courses as well, 45.2% said it was useful for recalling the lessons concepts, 41.9% agreed that it was a new and novel way for learning, and 43.9% chose this item as much and very much for the impact on the duration of learning by using this tool.

Conclusions: The Parasitology e-book is a useful and practical tool for recalling lessons at anytime and anywhere possible. It is suggested that due to its attractiveness and prompt spread of this technology in different dimensions, it should be used in other courses of clinical and basic sciences (ANDROID compatible format) at the beginning of each term.

8BB Posters: Selection for Undergraduate Studies
Location: South Hall, PCC

8BB/1
Evaluation of a comprehensive admission procedure including MMI, MCQ and GPA in a large scale setting

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Background: Admission to medical school is a competitive process with high stakes. Any admission process must therefore be valid and reliable. The University of Southern Denmark has since 2008 used a combination of Grade Point Average(GPA), the ACER (Australian Council of Educational Research) admission MCQ (uniTEST ™) and a 7-8 station Multiple Mini Interview(MMI) to admit 50% of students(ATP-S). The remainder of students are admitted on GPA alone (GPA-S).
Summary of work: In this project we evaluate the admission procedure (GPA, MCQ, and MMI) from 2008-2010. 2267 applicants completed all or parts of the procedure resulting in 478 enrolled students. The reliability of the MMI and MCQ and their correlation with each other and the GPA is assessed. GPA-S is compared to ATP-S on dropout rates and study progress.
Summary of results: The MCQ and the MMI had an average reliability of 0,87 and 0,58 respectively. The average correlation between MCQ/MMI, MCQ/GPA and GPA/MMI was 0,1086/0,2123/-0,0322 respectively. The ADT-S superseded the GPA-S in study progress (93% vs 88,3 % p=0,011 passing the year 1 exams;). Lower dropout rates (2,1 % vs 4,0 % p=0,09) were also noted.
Conclusions: The ATP has proved valid in selecting students who perform well. The combined reliability of the MCQ and MMI is satisfactory and their low correlation with each other and the GPA suggests an additive value of each component.
Take-home messages: Combination of GPA, a MCQ measuring different cognitive qualities and a MMI focusing on personal skills performs well in selecting students for medical school as judged by performance and retention.

8BB/2
Can Multiple Mini-Interview predict academic achievement in medical school?

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Background: MMI is known as the best predictor of objective structured clinical examination performance. But it isn't revealed that MMI could predict the academic achievement of the other subjects in medical school curriculum.
Summary of work: Since 2008 year Kangwon National University School of Medicine has developed MMI as an admission process. Three rooms evaluating respective domains: motivation to become a doctor, ethical decision-making, communication and interpersonal skills, were opened to 84 applicants at 2008 year. 49 applicants were selected as medical students and 46 students of them finished the full course of medical education within 4 year curriculum. We calculated the Pearson's correlation coefficients between the total score of MMI of 46 graduates and the academic achievements of them in all subjects of the curriculum.
Summary of results: The Pearson's correlation coefficients between the total score of MMI and the academic achievements of 'Medical Interview and History Taking', 'Problem Based Learning', 'Doctoring 1' and 'Clinical Practice of Surgery' were in the range of 0.4~0.7 which meant moderately related. And those of between the total score of MMI and the academic achievements of 'Research Overview', 'Technical and Procedural Skills', 'Clinical Practice of Laboratory Medicine', 'Clinical Performance Examination 1,3', 'Psychiatry Practice', 'Neurology Practice', 'Orthopedics' and 'Anesthesiology' were in the range of 0.2~0.4 which meant weakly related.
Conclusions: The total score of MMI is more related to the academic achievements in the field of Medical Humanities or Clinical Practice than those in the field of Basic Medical Science and seems to be a good predictor of the success in such fields.
Take-home messages: MMI score at administration can predict medical students' academic achievement in the subjects related to Medical Humanities or Clinical Practice.

8BB/3
Behavioral and ethical judgments in a video-based SJT for selecting medical students in Germany: Do they work in the same way?

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Background: In Germany, there are many more applicants for medical schools than places. The selection process of medical students at Hamburg university includes the natural science test HAM-Nat and the Multiple-Mini Interview HAM-Int. To collect further information about social and personal characteristics we additionally tested a video-based situational judgment test (SJT).
Summary of work: 192 participants of the HAM-Int 2012 watched 4 videos containing communication and decision-making situations. For each video 2-3 questions with an open answer format were given to the participants. Responses were evaluated by two independent raters using two different strategies: 1) behavioral judgments by counting whether specified behavioral units had been mentioned by the participants and 2) ethical judgments by rating the global quality of given answers. For validation purposes personal characteristics were measured by traditional personality inventories or application-oriented and specific personality questionnaires. Distribution and central tendency measures, rater agreement and the correlations to the validity instruments were analyzed.
Summary of results: Ethical judgments had lower rater agreements (ICC=0.280) than behavioral judgments (ICC=0.866), smaller standard deviations of the responses and more extreme difficulties. Independently of rating SJT-tasks just weakly correlate with any personal characteristics.
Conclusions: Behavioral ratings are more reliable than ethical ratings in a video-based SJT. Raters are overstrained with global assessment of moral issues, actions or decisions stated in participants' answers. Criterion validity of our video-based SJT has to be further analyzed.
Take-home messages: The use of video-based SJTs in student selection needs specific and objective evaluation schemes.

8BB/4
Faking influences scores in situational judgement test – myth or reality

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Background: Selection in medical education needs to have the same quality assurance processes as in the assessment during the course (Prideaux et al, 2011). Patterson et al (2012) evaluated Situational judgement test (SJT) as a selection method in medical education. A systematic review was conducted in order to evaluate the evidence behind whether 'faking' would influence the scores in SJT
Summary of work: An online search of multiple databases was carried out using predetermined search terms to obtain studies relevant to the topic.
Summary of results: Peeters et al (2005) found significant effect of faking on the performance in SJT and negative impact of faking on criterion related and incremental validity of SJT. Peeters et al, (2005) opined that faking is possible in SJT depending on the instructions used - knowledge based instructions ("should do") were more resistant to faking than behaviour based instructions ("would do"). They also found evidence to suggest that faking in SJT was dependent on the construct measured.
Conclusions: Faking is possible in the selection through SJT and it affects the predictive validity and inter-rater reliability of the results of SJT. However this is dependent on the type of response format used and further research is necessary whether faking can be used to augment or influence scores in medical education selection.
Take-home messages: We need to research why and under which conditions faking is possible in SJT and what is the effect of coaching (Peeters et al, 2005).

8BB/5
Student selection in dentistry - The influence of dexterity and space on performance in preclinical laboratory courses

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Background: Current studies identify "space" as a proper predictor of performance in dental laboratory courses and disagree with earlier findings, which proved "dexterity" as a suitable selection criterion in dental admission. The relation of different abilities to dental skill acquisition and laboratory course performance in preclinical dentistry has not been fully clarified.
Summary of work: Referring to Ackerman's theory of skill acquisition we postulated that "space" has a weak and "dexterity" a moderate influence on performance of consistent tasks with low complexity. Furthermore, we expected that both abilities have a moderate influence on performance of inconsistent tasks with high complexity. "Dexterity" was measured using our wire bending test HAM-Man and "space" with an LPS-subscale before admission. Laboratory course performance was graded from 1=insufficient to 6=very good.

Summary of results: Partial least squares regression analysis confirmed our hypotheses. "Dexterity" had a moderate (β=.519, p<0.001) and "space" a weak (β=-.080, n.s.) influence on performance in the first semester course (n=37). Both abilities showed a moderate influence on performance in the first phantom course (second year, n=30, βdex=.370, βspa=.362, p<0.001) and second (third year, n=28, βdex=.423, βspa=-.325, p<0.05), which contain more complex and inconsistent tasks.

Conclusions: In line with Ackerman's theory we can explain the influence of "dexterity" and "space" on dental skill acquisition in preclinical laboratory courses. Complexity and consistency of tasks are essential to explain individual differences in performance.

Take-home messages: "Space" and "dexterity" have a significant influence on performance in preclinical laboratory courses. Both abilities are appropriate selection criteria for student admission in dentistry.

8BB/6
Approach to determine an admission policy and selection methods in medical universities in Kazakhstan

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Vitaliy Koikov (Republican Center of Healthcare Development, Centre for Research, Expertise and Health Innovation Development, Astana, Kazakhstan)
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Background: Analysis of admission procedure in medical universities shows the existence of problematic issues to be addressed, at the level of pre-professional education - school graduates aren't well informed about future profession; at the admission stage – competition is carried out only on the basis of the Unique National Testing results excluding medical specifics; at the stage of applicants' selection – dropout rates from medical school is 10-12%.

Summary of work: International experience demonstrates the importance of candidates' characteristics multiple aspects assessment – academic and nonacademic skills and abilities. Students, interns and faculty survey was conducted in two pilot universities to determine health worker's professional values, including five major competencies as preparations to implement MMI for applicants' selection at medical universities. Each component importance was assessed by Likert scale.

Summary of results: Analysis of research defined the following applicant's significant qualities: 1) personal - ability to express thoughts, observation, curiosity, patience, independence, maturity of judgments; 2) interpersonal and communicative skills - ability to consult, communicate, collegiality, confidentiality; 3) moral and ethical - call of duty, responsibility, honesty, integrity; 4) leadership – decision-making, confidence, stress resistance; 5) thinking - ability to learn, reasoning.

Conclusions: Research results are pre-condition for effective design of selection and admission process to universities and will be used in preparing situational tasks and questions for MMI.

Take-home messages: Selection and admission procedures to medical universities are important to achieve efficiency and quality of healthcare workforce training.

8BB/7
Selection-interviews at Hannover Medical School: Does the educational level of the parents matter?

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Background: In Germany, universities - notably Medical Schools - traditionally there is a large proportion of students whose parents already gained a high educational level. Selection procedures, particularly when interviews are conducted, are suspected to put at a disadvantage those who have lower parental educational backgrounds. At Hannover Medical School 60% of applicants are admitted by selection-interviews combined with GPA. Prior to invitation, applicants are asked to complete a questionnaire regarding motivation, future occupational area and parental educational background. The interviews were implemented as an additional criterion for broadening the selection process. Therefore a bias favouring applicants with parental academic background would be a severe thread for the intended results.

Summary of work: We descriptively analysed two cohorts and compared applicants with parental academic background and parental non-academic background considering distribution at the beginning of selection-interviews, GPA, received scores in selection-interviews as well as the overall outcome.

Summary of results: Expectedly, three quarters of the applicants have parents with academic background. There are no statistically significant differences between the groups regarding GPA as well as received scores in selection interviews. The ratio at the beginning of the selection-process corresponds to the outcome.

Conclusions: Within the selection-interviews at Hannover Medical School applicants with non-academic-background regarding parental educational status aren't at a disadvantage. Further research shall analyse the parental background of our faculty staff and the

influence of parental educational background on the success within the courses.

Take-home messages: There's no disadvantage within selection-interviews at Hannover Medical School for applicants with non-academic-background regarding parental educational backgrounds.

8BB/8
Correlation Between GPA and National Competence Examination (NACE) Results

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Background: The aim of the study is to know whether there is any correlation between GPA and National Competence Examination (NACE) result.

Summary of work: Medical education in Indonesia consists of Academic Stage and Profession Stage. The final step in the education is all students have to follow NACE as an exit exam. After computing the mean GPA of each stage and NACE result, we compute the correlation between GPA and NACE result using Pearson Correlation.

Summary of results: Mean of GPA at Academic Stage = 3.24, mean of GPA at Profession Stage = 3.46 and mean of NACE result = 76.82. There is a moderate significant correlation between GPA at Academic Stage and GPA at Profession Stage (r = 0.426, p <0.05) and also moderate correlation between GPA at Profession Stage and NACE result (r=0.480, p <0.05).

Conclusions: There is a moderate significant correlation between GPA and NACE result.

Take-home messages: Student performance at Academic and Profession Stages has a correlation with their NACE result.

8BB/9
Association between a Medical School Admission processes

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Bora Kim (Seoul National University College of Medicine, Office of Medical Education, Seoul, Korea, Republic of (South Korea))
Seok Hoon Kang, Kangwon National University College of Medicine, Department of Medical Education, Kangwon-Do, Republic of (South Korea))
(Presenter: **Mee Joo Kang**, Seoul National University College of Medicine, Korea, Republic of (South Korea))

Background: While many medical schools already incorporate data about non-academic characteristics into their admissions processes, these characteristics and assessing processes vary widely by school. This study examined the validity of each assessing tool in relation to a variety of outcome measures.

Summary of work: This study used a longitudinal-cohort design to examine the validity of assessing tools for academic and non-academic competencies. All students who matriculated at Seoul National University School of Medicine between 2002 and 2008 were included. Outcome measures were grade point average (GPA) at the end of the 4-year Bachelor's degree period, GPA across the 4 years of the curriculum, GPA during internship and residency.

Summary of results: GPA across the 4 years of the curriculum was not significantly different according to the students' affiliated colleges or former major. Former GPA of affiliated college positively correlated with GPA at the end of the 4-year (r=0.2566, p<0.0001). However, the score of essay negatively correlated with them (r=-0.1294, p=0.048). The correlation between assessing tools are as follows; between essay and interview was r=-0.2679 (p<0.0001); between English score and GPA, r=0.2196 (p=0.001); and between English score and autobiographical submission, r=0.1722 (p=0.008). Regression analysis showed that former GPA of affiliated college and young age at the admission were good predictors of GPA across and at the end of the 4-year.

Conclusions: These findings suggest that GPA was the most reliable predictor of student's performance. Essay and interview failed to select good performing students. For assessing non-academic competencies, future research is needed.

Take-home message: GPA was the most reliable predictor of student's performance.

8BB/10
The prediction of successful completion in medical study

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Patricia Martinkova (Institute of Computer Science, Academy of Sciences, Centre of Biomedical Informatics and Department of Medical Informatics and Biostatistics, Prague, Czech Republic)

Background: The study analyzes admission procedure at the largest school of medicine in the Czech Republic.

Summary of work: Data of 383 students admitted in 1999 were analysed by use of Pearson's correlations between predictors, cluster analysis and logistic regression.

Summary of results: We show that preadmission grades (GPA) predict the overall success in medical study with the same accuracy as admission tests but each of them describe different dimension of students' abilities.

Conclusions: The idea to admit part of the students only on base of excellent GPA can be considered a reasonable one. Nevertheless, simultaneous use of GPA and AT in admission process would bring higher quality of selection process and also practical advantages for future analyses.

Take-home messages: Admission tests and pre-admission grades were shown to describe different dimensions of students' abilities. While preadmission GPA describes long-term study success and ability to succeed in wide scale of high-school subjects, as the opposite, the admission tests cover students' ability to learn large amount of information, which might be crucial for future medical studies.

8BB/11
The role of specific preparatory courses for entry to the Medical, Bio-medical and Health-care course degrees in Italy

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Background: Entrance exams to Italy's medical, bio-medical and health-care faculties consist in multiple-choice quizzes regarding general knowledge, biology, chemistry, mathematics and physics; there is no aptitude test. Ranking is on a national scale. For 14 years now, Rome's Sapienza University has organised a preparatory course, providing both on line at www.orientamentoinrete.it and intramural lessons, to help candidates prepare for these tests and pass their first-year exams.
Summary of work: There were 84,852 visitors to the site with165 Italian schools taking part. Enrolments for 2012 numbered 2,083. The results for 2012 have been analysed.
Summary of results: The aggregate success rate (57%) was calculated by measuring matriculations to bio-medical faculties (1,117), against the numbers attending the course (2,083). The relative success level (39%) was obtained by measuring matriculation to Medicine and Surgery (367), against the places available (938) while the ratio between available places (938) and total number of candidates (6,247) was 15%.
Conclusions: The absence of an aptitude test permits entry to Medicine and Surgery on the basis of specific competence only. The heterogeneousness of Italian

High-school syllabi does not provide all students with the tools required to pass the national test. Attendance at the preparatory course bridges the cultural gaps between syllabi and local differences between similar types of schools. Students attending the preparatory course (on line and intramural) are 2,6 times more likely (P=0.0017) to gain entrance.
Take-home messages: Attendance at preparatory courses on-line during the final high-school year and intramural during the days preceding the exams provides favours entry to the above-mentioned course degrees.

8CC Posters: Educational Environment
Location: South Hall, PCC

8CC/1
Medical Students' perceptions about the Educational Environment

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Background: The educational environment has an important role in the learning process and the way it is experienced by students is closely related to their achievements, satisfaction and success.
Summary of work: To characterize the educational environment, we applied the Dundee Ready Education Environment Measure (DREEM) to the medical student of Health Sciences School. This questionnaire was combined with the collection of sociodemographic data.
Summary of results: The total score of DREEM (126/200 ± 21) revealed that students perceive positively the educational environment in school. It was identified that there is a weak support system for students with stress problems. Students feel too tired to enjoy the course activities. Another problem is related to the time factor, its organization and use during the classes. Students also feel bored during school activities and they seem to doubt the preparation of the teachers for lessons. Students of the Year 2 are those with more positive perceptions, while those of the 1st and 3rd years are those with the worst perceptions of the educational environment. Students whose parents have higher educational levels have better perceptions of the educational environment.
Conclusions: The educational environment is perceived positively by medical students. The weak areas of the educational environment must be priorities for optimization the educational environment. It should be paid particular attention to 1st and 3rd years, because they are those with worse perceptions of the educational environment.
Take-home messages: The educational environment is an important influence of the learning process and must be monitored so that it can be improved.

8CC/2
Does the students' perception about the educational atmosphere influence academic performance? The experience of the Universidade Nove de Julho (UNINOVE)

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Renata Gallotti (Universidade Nove de Julho, Medicine, São Paulo, Brazil)

Background: It is believed that a positive perception of students about the educational atmosphere can positively influence academic performance. In this analysis it is necessary that there are assessments in the course of medicine that integrate the contents developed.
Summary of work: Objective: To evaluate the influence of students' perception of the educational atmosphere on performance of students in third and fifth semester in integrated assessments. Method: Perception of students regarding educational atmosphere in UNINOVE was assessed by DREEM questionnaire (Dundee Ready Education Environment Measure): 50 questions categorized 0-4 points (total 200 points). Students were asked to respond to the instrument anonymously. UNINOVE conducts integrated assessments (PI) for the third and fifth semesters of undergraduate medicine that covers globally the content discussed in these periods. They consist of 20 questions divided into: multiple choice, short answers and practical issues.
Summary of results: A total of 112 students (53- third semester, 59-fifth semester) responded. We noticed a more positive perception of the teaching atmosphere in the fifth semester compared to the third semester (p<0.05). In the third semester the average of DREEM was 93.5±3.7/200, which shows that there are aspects to be improved. Regarding the fifth term, the overall punctuation was 104.02±3.3/200, representing a predominantly positive vision. Regarding the PI, the average of the third semester was 4.4±0.2 and the fifth semester was 6.71±0.2. It shows a progression in knowledge acquisition from third to fifth semester (p<0.05).
Conclusions: Students' perceptions of more positive atmosphere of teaching could improve the academic performance during the undergraduate medicine course.
Take-home messages: Academic performance was influenced by an optimistic vision of the educational environment.

8CC/3
A DREEM Can Become True

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Background: This study compares changes in the educational environment and how students perceive

their educational experiences at King Abdulaziz University Medical School (KAUMS), Jeddah, after the adoption of the problem based learning (PBL) curriculum.
Methodology: Dundee Ready Education Environment Measure (DREEM) questionnaire was used to elicit responses on the following variables: students' perceptions of learning, students' perceptions of teachers, students' academic self-perceptions, students' perceptions of atmosphere and students' social self-perceptions. A total of 50 items addressed the five domains of the educational environment. The DREEM questionnaire scores were compared using a nonparametric test.
Summary of results: The scores of the students' perception to learning in second year were significantly lower than to those in 3rd year (P <0.0001). Fifth year students showed higher scores in their perception to the teachers (P <0.002) but lower SAP, SPA and total DREEM scores (P <0.010, P <0.045, P <0.003) compared to scores for students in the 6th year which means the old curriculum was more moving to the right and had plenty of problems, while in the new curriculum, the students had positive feeling toward their learning environment.
Conclusions: Both groups of students who received the old and new curriculums faced significant problems with the learning environment at KAUMS, more significantly in the clinical years (5th and 6th years).
Take-home messages: With the inclusion of problem-based learning (PBL), teachers can alter the learning environment to be more student-centred. Teachers under this model should act as tutors and guides and not present themselves as the ultimate sources of needed information.

8CC/4
Undergraduate medical students' perception of the educational environment with the DREEM questionnaire at UNAM Faculty of Medicine in Mexico

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Melchor Sánchez (UNAM, Secretaria de Educación Médica, Mexico)
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Background: The educational environment represents a determinant factor in the teaching-learning process. Our undergraduate medical curriculum is going through a transition. We are interested in knowing the students' perception of the environment in which they study during this period of curricular transition.
Summary of work: The (DREEM) questionnaire was validated and translated to Spanish and administered to 2435 students in all four years of undergraduate medicine from both the old and the new medical curriculum. Five separate elements of the educational environment were analyzed.

Summary of results: The overall score for the questionnaire was 125.07 which characterizes a more positive than negative educational environment. In general the students' perception of teachers was positive and students' perceptions of atmosphere had a tendency to be negative.
Conclusions: We were able to picture the perception of medical students concerning the educational environment at the moment of transition into a new medical curriculum. This is a baseline measurement from which we will be able to compare how their perception changes with time during the implementation of the new medical curriculum.
Take-home messages: The DREEM is a reliable tool that allows us to know the perception of the educational environment.

8CC/5
Use of the Dundee Ready Educational Environment Measure (DREEM) in a United States veterinary professional program to determine students' perceptions of the learning environment

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Background: The Dundee Ready Educational Environment Measure (DREEM) has been used within areas of the human health learning environments but has not been applied to a U.S. veterinary educational environment. U.S. veterinary professional programs often consider curriculum reform and student perceptions of the learning environment should be included in the discussion. Also, in contrast to human medicine, U.S. veterinary professional programs are four years in duration in which students are trained to treat all species as generalists as there is no limited licensure.
Summary of work: The DREEM tool was administered to veterinary students enrolled in a program within the United States. In addition, students had the opportunity to share structured comments which were used in the final analysis. Focus groups were formed to discuss the areas of concern in more depth and develop resolutions.
Summary of results: Four areas of concern were identified: Students are tired, they cannot memorize all they need to perform well academically within the program, the daily class schedule is an issue and finally, there is too much factual information taught within the curriculum. Moreover, the students within the third year of the program were more dissatisfied with the program then years 1, 2 and 4.
Conclusions: The results will be beneficial to curriculum reform discussions within a veterinary professional program.
Take-home messages: The DREEM tool can be used to elicit student perceptions regarding the learning environment within a veterinary professional program.

8CC/6
A Randomized Study to evaluate the Educational Environment of Brazilian Medical Schools

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Background: The educational environment of a Medical School influences students' learning, academic progress, and well-being.
Summary of work: This study was a national evaluation of the educational environment, using the DREEM questionnaire. The sample was 1350 randomized students from 23 medical schools in Brazil.
Summary of results: Although there were no gender differences for mean total DREEM scores, they decreased along course progression 125.4+28.5, 118.1+28,8, 113+28.1 (p<0.001) for 1st-2nd years (group I), 3rd-4thyears (group II) and 5th-6th years (group III), respectively; while the percentage of students negatively perceiving the overall education increased (group I 19.8%, group III 29%). The percentage of students badly perceiving learning increased along the years (group I 24.6%, group II 34.6%, group III 40%). Perception of teaching, with the percentage of poor or more negative perception for group I 17.6%, group II 19.1%, group III 31%. No differences were found on academic self-perceptions, perceptions of atmosphere scores were higher in the first years, while females had a worse social self-perception.
Conclusions: The number of students with negative perceptions increased throughout the years. This seems to be mainly because of worsening of learning and teaching perceptions. The atmosphere deteriorates after the first years when students progressed to more clinical settings, although academic self- perception did not change.
Take-home messages: The worsening of the perception of education environment in the final years of Medical School should stimulate medical faculty to improve their role as teachers.

8CC/7
The educational environment and curriculum at Faculty of Medicine, Tirana, Albania: what do students think?

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Background: The Faculty of Medicine (FoM) in Tirana, Albania has started curriculum transformation to comply with international standards. Informal students' opinions indicate dissatisfaction with current curriculum, but there has been no formal evaluation of their educational experience. This study aims to evaluate students' experience and use it to inform curriculum transformation.
Summary of work: A cross sectional design targeted students at year 3 (end of preclinical stage) and year 6 (end of clinical stage). The survey questionnaire used DREEM (translated and piloted in Albanian) to measure students' perceptions of the educational environment with additional open-ended question on suggested changes of the current curriculum.
Summary of results: The questionnaire was distributed to 3rd year class (226 out of 250). Preliminary results reveal very few areas with satisfactory DREEM score (>/=3). Entries to open-ended question suggest several changes: early clinical exposure, more small-group, problem based teaching; use of formative assessment, fair & relevant exams; better facilities and resources. Further analysis is under way. Data from 6th year class will be collected at end of April and comparison will be conducted.
Conclusions: The results provide a rich and valuable snapshot of students' educational experience in the current curriculum at FoM in Tirana. The problematic areas identified by DREEM and students' suggestions on curriculum changes provide further evidence, motivation and guidance to the curriculum transformation team.
Take-home messages: Evaluation and incorporation of students' educational experience is a vital element in planning curriculum transformation. DREEM has proven to be a useful tool to do this evaluation even in Albania.

8CC/8
Educational climate perception in medical interns from Holy Concepction´s Catholic University

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Guillermo Flores (Holy Concepction´s Catholic University, Office of Education in Health Sciences, Concepción, Chile)

Background: Educational climate perception in medical interns from the Holy Concepction´s Catholic University.

Summary of work: It is proved that the educational climate influences students' academic performance. Nevertheless, the focus today is on didactics. This study determined the perception of the educational climate in medical interns using the PHEEM survey. Data analysis was made with SPSS 20, obtaining a Cronbach's alpha of 0.757.

Summary of results: Interns perceive, in general, an adequate educational environment, although some problems were found. The autonomy role was the best evaluated followed by education and social support domains. In the autonomy role, interns are satisfied with their work, and receive good guidance at the beginning of the internship. On the contrary, internship's responsibilities assigned to them, and the opportunity to learn new procedures scored poorly. In the rest of the domains, most students reported having enough time to prepare their academic activities, and satisfaction with their professors' teaching skills. They are not satisfied with reinforcing opportunities when they have problems.

Conclusions: In general, interns perceive an educational climate with some problems. They have a good perception of their work, and recognize the clinical skills of their teachers. However, teaching and social support appear as weaknesses. Interventions for these could be to review the curriculum and to prepare teachers in personal and pedagogical skills to enhance clinical teaching.

Take-home messages: Faced with efforts to improve the teaching faculty, the student may react negatively when the educational environment is inadequate, affecting their academic performance. It requires, therefore, diagnosis of strengths and weaknesses to improve student success.

8CC/9
Measurement of Educational Climate Using DREEM After 4 Years of Bologna Reform In Medical School of Barcelona University

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Arcadi Gual (Medical School, University of Barcelona, Spain)
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Francesc Cardellach (Medical School, University of Barcelona, Spain)

Background: Educational Climate is one of the determining factors of an academic curriculum. The aim of any proposed change to a curriculum is the improvement of the environment for teaching and students' learning.

Summary of work: Four years after the implementation of a new curriculum according to the Bologna Process, our medical school has measured its educational climate (EC) using DREEM, in the context of a transversal study conducted currently in other Spanish Medical Schools. Previously validated, DREEM Spanish version was administered respectively to 2nd and 4th year students.

Summary of results: 90% of the 2nd year students (180) and 62% of the 4th year students (99) answered the questionnaire. The global scores obtained were, in 2nd year, 122.7 ± 22 (61,3%) and 119.99 ± 22.9 (59,4%) in 4th year. The results in different domains were: Learning: 27.0 (56.25%)/24.7 (51,4%); Teachers: 27.5 (62.5%)/27,45 (62,3%); Academic: 20 (62,5%)/20.5 (64,0 %); Atmosphere: 31,9 (66,6%)/30,4 (63,3%) and Social: 16,5 (58,9%)/15.7 (56,0%). In the 2nd year, 5 items (nº 3, 4, 12, 14 and 25) present scores below 2 and 4 items (2, 15, 28 and 33), scores above 3. In the 4th year students, 9 items present scores below 2, (the same as in 2nd year plus nº 25, 27, 29 and 47) and 4 items (2, 10, 15, 28 and 33) present scores above 3.

Conclusions: Our students felt that their EC was more positive than negative, considering the different domains "positive and acceptable." The fourth year students' perception is slightly lower than the 2nd year students. Both student groups pointed out specific "problematic educational aspects" practically in the same items.

Take-home messages: These results must be taken into account to implement remediation measures in the near future.

8CC/10
Use of the DREEM inventory to compare the students' perception of the educational environment in different curricular stages: from initial cycle to clinical cycle

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Marta del Valle (Universidad Nacional del Sur, Health Science, Bahía Blanca, Argentina)
Marina Bolletta (Universidad Nacional del Sur, Health Science, Bahia Blanca, Argentina)
Lucrecia Burgos (Universidad Nacional del Sur, Health Science, Bahia Blanca, Argentina)
Corina Lamponi (Universidad Nacional del Sur, Health Science, Bahia Blanca, Argentina)

Background: The learning environment perception could be modified by different factors, one of which is the organizational climate. Change in learning settings across the curriculum could lead to change in educational environment perception.

Summary of work: To compare the perception of the educational environment of two cohorts of medical students from the Universidad Nacional del Sur (spiral integrated curriculum) at two different points in time: the initial cycle (problem-based learning) and the clinical cycle (practice-based learning). Subjects and methods: A prospective descriptive study. The DREEM questionnaire was applied to two cohorts of students when the they

were in the initial cycle (2nd and 3rd year) in 2009 and reassessed in 2011 while they were in the clinical cycle (4th and 5th year).

Summary of results: From a total of 84 eligible students 76 were still active in 2011, 69 responded the survey and 53 (69,7%) were analyzed. The Cronbach alpha was 0,859 for 2009 data and 0,913 for 2011. Average overall score was for 2009 was 146,17 (DS±12,297) and for 2011 146,19 (DS±19,863) representing an educational environment that is more positive than negative. Total scores and subscale comparison across cycles shown no statistically significant differences except for Student Academic Perception with better perception in the clinical cycle (p=0,046.).

Conclusions: The overall perception of the students on the educational environment was very good; there were no statistically significant differences in total score across cycles probably because other factors have greater influence than learning scenarios.

Take-home messages: Our study suggests the utility of continuous assessment of the educational environment.

8DD Posters: Subjects in the Curriculum
Location: South Hall, PCC

8DD/1
Filling the gap - teaching on interpersonal violence in the undergraduate medical curriculum

Catherine White (Central Manchester University Hospitals NHS Foundation Trust, St Marys Sexual Assault Referral Centre, Manchester, United Kingdom)
Zainab Jawad (The University of Manchester, School of Medicine, Stopford Building, Oxford Road, Manchester M13 9PT, United Kingdom
Lucy Williams (The University of Manchester, School of Medicine, Manchester, United Kingdom)
Jessica Roth (The University of Manchester, School of Medicine, Manchester, United Kingdom)

Background: 'Interpersonal violence' is a term that encompasses sexual assault, rape, elder abuse and domestic abuse. All doctors, regardless of specialty, will come into contact with patients who may have an abusive history – either acute or historical. However, most UK medical schools provide little or no teaching on the issues surrounding interpersonal violence. It is often assumed that there is 'no room' to fit in additional teaching in medical school timetables. But advancements in medical education mean that teaching no longer needs to take the form of formal lecture or didactic teaching sessions. An educational package was developed that aimed to equip medical students with an understanding of these topics.
Summary of work: A questionnaire was developed to gauge the base level of medical student knowledge. Teaching materials for clinical medical students were also designed - video lectures were recorded, discussion cases were added to the e-learning curriculum and resources were made available for further learning.
Summary of results: Early feedback from students is overwhelmingly positive. Many indicated that it will influence their future clinical practice, and has served to dispel myths and stereotypes that they had previously held. Students particularly appreciated that teaching was provided via e-learning.
Conclusions: Teaching on interpersonal violence is an important addition to undergraduate curricula and is valued by students.
Take-home messages: In busy medical curricula, it is often hard to find space for additional teaching on 'new' topics. However, teaching can be successfully provided in a variety of ways, so that important topics can be covered concisely and effectively.

8DD/2
An undergraduate multidisciplinary conference to stimulate interest in wilderness medicine and global health

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Background: The traditional curriculum in medical schools in the UK often does not cover the specialist and diverse field of wilderness medicine 'emergency medicine practiced in a remote environment' or global health. There is often limited opportunity to learn from, or alongside, other healthcare disciplines who may also work in this field.
Summary of work: An undergraduate multidisciplinary weekend conference organised by medical students was advertised to medical, nursing and paramedical students across the UK. A mixture of short workshops and longer 'hands-on' activities were presented by specialist ambulance crews and experts in mountain rescue, humanitarian aid, military medicine and many more areas. This enabled students to discover alternative careers within their discipline, learn about other disciplines' roles and gain specialist knowledge and skills. Feedback in the form of rating and free text was collected from delegates after the event.
Summary of results: Delegates (n=204) attended the conference where 32 organisations ran workshops and activities. Quantitative data collected from students rated the conference overall a mean score of 9/10. Qualitative data revealed students were inspired by the speakers, discovered more about their potential career, enjoyed the variety of activities and workshops on offer and were able to socialise with other like-minded students.
Conclusions: The conference inspired students to further develop their interest in wilderness medicine through learning useful skills and knowledge, appreciating the roles of different disciplines and networking with students and speakers.
Take-home messages: Undergraduate conferences in specialist areas offer students the opportunity to learn more about their potential career, whilst gaining knowledge and skills.

8DD/3
Behavioural Management in Dentistry - A Curricular Design

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Background: Dental anxiety has been identified as one of the two most crucial barriers encountered by the general population in accessing dental health care. Dentists have been reported to use a number of behavioural management techniques to manage dental anxiety which may be either learnt during undergraduate or graduate training, or by observing other dentists, or by trial or error. Several of these

techniques have been validated as being effective in relieving dental anxiety. It has been suggested that a course in behavioural management should be incorporated into the curriculum of dental schools.

Summary of work: The dental undergraduate curriculum needs to be revised in the light of current evidence such that behavioural management in incorporated within the current dental curriculum

Summary of results: We, at Islamic International Dental College have designed an evidence based 'Behavioural management module' to be incorporated into the undergraduate dental curriculum.

Conclusions: Behavioural management skills are integral in the management of the dental patient. Dentists must be trained to manage the dentally anxious patient. To achieve this, a course designed in the light the current best evidence has been designed.

Take-home messages: Incorporation of the module will equip the dental students to manage dentally anxious students more confidently and appropriately, with less use of pharmacological interventions.

8DD/4
Proportion of 4th-6th year medical students who had a good level of knowledge about infection control: a study in a medical school

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Background: Nosocomial infection is a critical medical problem which results in many losses so infection control is used to solve it. Healthcare workers including medical students should have this knowledge to decrease nosocomial infection.

Summary of work: To determine 1) the proportion of 4th-6th year medical students who had a good level of knowledge about infection control; 2) the proportion of their compliance according to infection control procedure; 3) Attitude of 4th-6th year medical students about improving an infection control teaching program. A Descriptive study using a self-administered questionnaire containing a standard precaution and transmission-based precaution, ventilator-associated pneumonia, catheter-related urinary tract infection, blood stream infection and surgical site infection.

Summary of results: The overall response rate was 79.9% (361/452). The proportion of 4th-6th year medical students with a good level of knowledge about infection control was 3.7% (13/347) (95%CI:2.2,6.2); The highest knowledge level was regarding respiratory tract (57.9 %) followed by standard precaution (25.3%) and the least well understood area was surgical site infection (1.7%). For compliance, the greatest compliance was using 70% Alcohol to clean the puncture site before and after drawing urine from Foley's catheter (44.6%) and the lowest compliance was bringing unnecessary equipment into the operating room (8.6%). Medical students need to increase infection control in the medical curriculum; to a high level for 50.3% and practical-base education for 57.2%.

Conclusions: Of 4th-6th year medical students, only 3.7 % had a good level of knowledge about infection control. The lowest part which had a good level of knowledge about infection control was surgical site infection prevention while the lowest level of compliance was bringing unnecessary equipment such as books into operating room.

Take-home messages: Medical students must learn and practice infection control in their daily practice throughout their medical profession.

8DD/5
Learning Ophthalmology through integrated approach by Medical Students at Medical University in United Arab Emirates

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Background: Teaching and learning of medical students in Ophthalmology is varied among medical schools across the globe. International guidelines of basic learning outcomes in ophthalmology are available. Our University shifted from a traditional to organ system based integrated curriculum in 2008. Learning Ophthalmology through an integrated approach spread across various organ system modules presents challenges. This work describes how the ophthalmology curriculum was delivered in the integrated medical curriculum.

Summary of work: The terminal competencies required of a medical graduate in ophthalmology were defined. The knowledge, skill and attitudinal objectives were derived from these terminal competencies. The knowledge domain was integrated and distributed among various organ system and multisystem modules like Diabetes and Hypertension spread across four years. The ophthalmology clinical skills were integrated amongst disciplines and distributed during the clinical skill component of organ system modules and clinical clerkship postings. The attitudinal skills were learnt throughout the medical course. The students were assessed in an integrated examination at the end of the year examination

Summary of results: 60 students learnt ophthalmology through horizontally and vertically integrated modules of nervous, cardiovascular, endocrine, multi-system

modules and clinical clerkship postings spanned over 4 years.

Conclusions: Ophthalmology can be learnt by medical students in an integrated method and the curriculum can be distributed across various organ systems model in an integrated curriculum.

Take-home messages: It is essential for a medical graduate to learn basic ophthalmology to provide basic and preventive eye care to the patients. Ophthalmology can be learnt in an integrated curriculum following organ system method using competency based method.

8DD/6
Making haematology relevant to the undergraduate medical student: A practical interactive course

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Background: Medical students often perceive haematology as a daunting 'niche' specialty removed from everyday clinical practice. This stems partly from fragmented undergraduate education involving isolated lectures and laboratory workshops, with limited clinical exposure to reinforce the practical applications of such knowledge. We wanted to equip students with practical haematological knowledge that could be applied to all areas of medicine.

Summary of work: Students from seven British medical schools (n=73) attended a one-day course covering a curriculum (approved by the British Society for Haematology): blood count investigations, anaemia, coagulopathy, and transfusion medicine. Each subject was taught through interactive small-group sessions led by haematology specialty-trainees. Students gained practical knowledge through solving patient-based haematological problems that commonly arise in all clinical specialties, e.g. reversing raised INR. Efficacy of the course was assessed by pre- and post-course questionnaires that scored student-reported confidence in haematology topics. A pre- and post-course quiz provided objective assessment of student improvement.

Summary of results: The students gave positive feedback and found the course very useful. Students reported greater confidence in applying their haematology knowledge (32% mean increase on five-point Likert scale in confidence, p <0.0001), and scored better in the post-course haematology quiz (21% mean improvement, p <0.0001). An additional 10% of the students expressed an interest in haematology as a career after attending the course.

Conclusions: Teaching how haematology can be applied in different clinical specialties can improve students'

understanding in haematology, and hopefully improve their confidence as a junior-doctor.

Take-home messages: Students show more interest in haematology by highlighting its clinical relevance in everyday clinical practice.

8DD/7
Introduction of point of care ultrasound (PoCUS) education during our simulation day for medical students - imaging the inferior vena cava to assess fluid responsiveness

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Background: The evaluation of a patient's intravascular volume status can be aided by the use of portable ultrasound. The 2011 Symington report predicted that "Point of care ultrasound" (PoCUS) will change how medicine is practiced and taught. Since then PoCUS has become part of the medical curricula worldwide to various degrees. Our 2012 undergraduate curriculum change was prompted by 2011 learner feedback, which mentioned that one of our stations contained educational material that had already been taught. Our goal was to introduce new educational content while fostering a new clinical competency.

Summary of work: During August 2012 we performed a literature search on the topic of imaging the inferior vena cava (IVC) to assess fluid responsiveness. We consulted emergency medicine, intensive care and anesthesia clinicians currently utilising this modality. Facilitator and student objectives were composed. Facilitators were recruited from the regional anesthesia fellowship program because of their familiarity with ultrasound teaching. After obtaining faculty approval we designed an "Ultrasound IVC Fluid Responsiveness Assessment" interactive station. After an initial structured demonstration by the facilitator each student was supervised as they obtained transverse and longitudinal subxiphoid views of the IVC in a live anatomy model.

Summary of results: Initial mean learner (40 students) evaluation scores (Likert scales) increased from 3/5 (2011) to 4- 5/5 (2012). Student comments wished for "more ultrasound throughout clerkship".

Conclusions: Our findings support those of Hoppmann et al (2011) who report that undergraduate students "feel their ultrasound experience enhances their medical education". This work is a step towards the

creation of an integrated ultrasound curriculum for medical students attending the University of Toronto.
Take-home messages: Students are interested in learning about point of care ultrasound (PoCUS) during their medical school years. There is increasing international interest in the concept of an integrated ultrasound curriculum for medical students.

8DD/8
Development and evaluation of primary care training program for physicians in disaster area of the Great East Japan Earthquake

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Background: Our disaster relief team of primary care professionals, PCAT (Japan Primary Care Association, Disaster Relief Project) has dispatched more than 360 professionals to disaster areas since 11th March in 2011. From October in 2011, we started to dispatch senior residents monthly to the disaster-stricken local hospital in Miyagi.
Summary of work: We developed the primary care training program in disaster area for the senior residents, and we evaluated and improved the program according to the action research framework. We included 8 physicians who were dispatched from January 2012 through August 2012 for the research.
Summary of results: Our program consists of (1) pre-dispatch training of Psychological First Aid, (2) daily feedback session from staff physicians on site, and (3) weekly reflective session on teleconference (using videoconference system) in which family physicians and psychiatrists joined. The analysis of interviews revealed "needs of consulting psychiatric problems", "needs of continuity of care in chronic disease management", and "the importance of interprofessional collaboration", and we improved our program continuously in the action research cycle. In addition, the interviews revealed what they learned in disaster area such as "understanding the grief of disaster victims", "awareness of lack of resources and poor accessibility in disaster area", "appreciating the importance of public health in the community", and so on.
Conclusions: We developed the primary care training program in disaster area for the senior residents, which emphasizes the continuous support by psychiatrists and family physicians.
Take-home messages: The primary care training program for physicians in disaster area should include psychiatric consulting support.

8DD/9
Final Year Medical Students' Confidence in Chest Film Interpretation

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Background: Today, the chest radiograph remains the most important modality of chest imaging, because of the low cost, effectiveness as a diagnostic tool and availability in every hospital. This study was aimed at studying confidence in chest film interpretation, based on The Medical Council of Thailand's requirements (23 diseases).
Summary of work: We conducted a cross-sectional study in the academic year 2012 in the last week of the 6th year medical students curriculum. They were enrolled to answer the five levels Likert scale questionnaire (Cronbach's alpha reliability = 0.91) that asked for "Confidence in 23 chest film interpretation".
Summary of results: The overall mean of 52 students' confidence was 3.68 of 5 points. The top three confidences were pleural effusion (3.91), pneumothorax (3.69) and cardiomegaly (3.69) while the last three confidences were posterior mediastinal mass (2.45), middle mediastinal mass (2.56) and pulmonary hypertension (2.60). More than 75% of students had nearly as good to excellent confidence to interpret common thoracic diseases in Thailand; pneumonia, COPD and pleural effusion (over half of all students had good confidence).
Conclusions: Most of the last year medical students had nearly as good confidence to interpret The Medical Council of Thailand chest film requirements.
Take-home messages: Confidence in chest film interpretation is important to smart doctors.

8DD/10
A to A+, a quality improvement program for junior medical students

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Background: Quality improvement is one of the core contents in business schools and business administration programs. Nowadays, practice-based learning and improvement is listed as one of 6 competency domains for graduate medical education.

To introduce the concept early in medical training is important.

Summary of work: We have conducted a quality improvement program (known as A to A+) for 4 years for medical students of year 1 or 2. The program is composed of 8 interactive lectures and 8 weeks of small group tutorials. The lectures cover the aspects of principle of priority setting, time management, PDCA (plan-do-check-action) theory, SWOT (strength-weakness-opportunity-threat) analysis, quality management, learning theory, research quality and patient care quality. Students are then assigned into small groups with tutors. They can practice applying knowledge learned on a self-determined project to demonstrate the improvement in quality.

Summary of results: This program has been listed in the top 3 most popular courses in our university since its launch. Students gave positive feedbacks on the effectiveness of learning, including the improvement of academic marks or extracurricular activities. Over 20 projects have been introduced through the program in the 4 years.

Conclusions: Quality management concepts are important in modern medical education. The key concepts of quality management can be effectively taught through interactive lectures and small group tutorials.

Take-home messages: Quality improvement concept is a core element in competency of medical education. Introducing the learning early in medical education is beneficial for both academic achievement and extra-curricular activity success. Long term follow-up is mandatory to prove its effectiveness in future clinical practices.

8DD/11
Factors associated with knowledge and attitude towards palliative and end of life care in medical students in Thailand

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Background: Palliative and end of life care recently has been taught in clinical year medical students in Sanpasitthiprasong hospital. The present study aimed to examine the theoretical knowledge and attitude in palliative and end of life care among clinical year medical students, and to examine factors associated with their knowledge and attitude.

Summary of work: 79 4th-6th year medical students were invited to answer the self-administered questionnaire, which included information on students' characteristics, experience caring relatives who were dying, theoretical knowledge and attitude towards palliative and end of life care. Experience of caring of their dying relatives was presented in percentages. Median (interquartile range, IQR) knowledge and attitude scores, and high score was defined as more

than 80% of total score. Factors associated with the knowledge and attitude was examined using logistic regression.

Summary of results: The median age (IQR) of the students was 23.5 (23.0-24.5) years, with 42% being male. 29 students (37%) reported having cared for their relatives who were dying. The median knowledge score (IQR) was 4 (3-5) out of 8. The median attitude score (IQR) was 38 (34-40) out of 50. Eight students (10.1%) and 28 students (35.4%) had high knowledge and attitude scores respectively. Having had dying relatives and experience of caring for the relatives who were dying were not associated with the knowledge and attitude (p > 0.05).

Conclusions: Students' knowledge in palliative and end of life care was moderate, while their attitude was fairly good. The experience of caring for the relatives who were dying was not linked to students' knowledge and attitude. The highest scores observed in Year 4 might be explained by the fact that interactive class and community based learning for palliative and end of life care was mainly in Year 4.

Take-home messages: Palliative and end of life care should be included in formal curriculum.

8DD/12
Clinical Ethics at the Ward: Discussing End-of-Life Decisions with Residents and Students in a Brazilian University Hospital

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Background: The increasing life expectancy of the population carries a higher prevalence of chronic-degenerative diseases and neoplasms, which imposes the need for the doctor to deal with issues related to death and with end-of-life care. Undergraduate medical students and residents have little experience with these issues, which amplifies personal difficulties related to the theme.

Summary of work: Undergraduate medical students and residents of an intensive care unit and an internal medicine ward of a Brazilian university hospital participated in a weekly meeting of clinical ethics, during 1 month, throughout the year of 2012. At each meeting, they presented one of their actual clinical cases, with issues related to terminal illness. The group discussed the cases following a script of clinical ethics that covers the clinical situation, the patient's point of view, the quality of life and legal aspects, searching for conclusions and decisions. Participants were encouraged to give their opinion and share with the group their feelings brought by the case, which often occurred in an intense and emotional way.

Summary of results: Students and residents showed increased awareness about the need to deepen the knowledge and understanding of patients and their families. Over the weeks, they have shown greater serenity to discuss the issue and make decisions related to terminal illness.

Conclusions: Issues related to terminal illness and palliative care have great importance in day-to-day medical practice and there is a need for students and residents to discuss and reflect about it.

Take-home messages: The medical curriculum should include specific time for the discussion of end-of-life care.

8DD/13
Poor pain management: Education failure or unchangeable attitudes?

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Background: Junior doctors are first responders to acute pain in hospital, yet suboptimal management is widespread (Helfand and Freeman 2009). Is inadequate treatment a consequence of educational failure or inbuilt attitudes that are unaltered by experience and training?

Summary of work: Thematic analysis (Kruger and Casey 2000) of two scripted focus groups, discussing acute pain management. a) Doctors within 6 months of graduation (n=7) b) Medical students, recently completed first clinical placement (n=7).

Summary of results: Three common themes emerged. HELPLESSNESS – Repeated expression of helplessness in managing patients in pain. PAIN VALIDITY - The "deserving" versus "undeserving" patient, with some types of pain perceived as more "valid". A suggestion it is socially preferable not to complain about pain. POOR KNOWLEDGE – Of drugs, dosing and practicalities of administration. Only small differences in understanding between groups, with experiential learning identified as influential. Differences;   Medical students expected a habituation to seeing patients in pain would develop with time, but had major concerns regarding opioid addiction. Junior doctors expressed feelings of irritation towards patients in pain, an acceptance of the inevitability of treatment failure and insight into seeing pain as a low clinical priority.

Conclusions: Attitudes to pain management are not fixed and appear to develop, hardening with training. Large gaps in knowledge may contribute to this, themes of helplessness and social constructs of pain validity.

Both knowledge and attitudes regarding pain management evolve and are prime targets for educational intervention.

Take-home messages: Pain management education at undergraduate and postgraduate level should address knowledge and attitudes if it is to impact on patient care.

8DD/14
Pharmacokinetics: The preferable way to teach it for Generation Z medical students: Experience from Thammasat University

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Background: Medical students now are the internet "Generation Z", with the over-dependence on technology prefer learning by exploring using their own paths, and dislike the lecture class. However, for the subject that is difficult to understand, such as pharmacokinetics, it is hard to say what teaching methods they choose. Thus, this study aims to evaluate which method of learning Generation Z medical students prefer in difficult topics such as pharmacokinetics.

Summary of work: After completing the course containing the lecture and the clinical scenario of pharmacokinetics, the second year medical students were assigned to complete questionnaires to evaluate the learning experiences in pharmacokinetic study including a lecture, self-study from internet worldwide, textbook reading and small group learning using five rating scales. Data were analyzed using mean ± SD and one-way ANOVA.

Summary of results: From the response data (88% response rate), mean score of the lecture, small group learning, reading textbooks and self-study from internet worldwide were 4.17 ± 0.76, 3.58 ± 0.78, 3.36 ± 0.99, and 2.74 ± 1.14, respectively. Interestingly, the more clearly preferable learning experiences was lecture ($p < 0.05$).

Conclusions: Although Generation Z medical students favor learning from internet worldwide, they also prefer the lecture for more insight in the difficult topic. However, small group learning and reading textbooks were also needed for more effective learning especially in problem solving.

Take-home messages: Lectures for Generation Z medical students should be integrated with the clinical correlation to encourage their critical thinking skills.

8DD/15
Ability to extract embedded information from guidelines in relation to calculating drug doses

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Background: For medics, dosing involves extracting quantities embedded in standard treatment guidelines. We compared first year student ability using these with their ability where information was not embedded.

Summary of work: After 10 hours of training, 178 students were given ten practical dosage calculations. Of those 10, four questions were embedded. Ability was compared between the embedded and non-embedded calculations. The influence of home language and school leaving maths score was also investigated, using Epi-Info (version 3.5.3) to perform statistical testing.

Summary of results: Students achieved on average 34% and 57% for the embedded and non- embedded questions respectively (p<0.001). The two worst answered questions were embedded, with only 7% and 25% getting them right. None of the four best-answered were embedded. The worst answered question, concerning oral paediatric digoxin, involved several steps: manipulating a decimal quantity (0.01mg/kg), dividing the daily dose then rounding off. Non- English mother-tongue speakers achieved a lower mean total score than their counterparts (4 vs. 6 correct answers, p<0.001).While the risk of failing both kinds was significantly higher for non-English students (p<0.01), it fell from 2.5 to 1.7 between the non-embedded and embedded questions. For the 136 students who wrote the school mathematics examination , school mathematics ability predicted ability to do non-embedded type questions to a greater extent than embedded -type questions ($r2 = 0.17$ vs. 0.10).

Conclusions: Despite training, students battle with embedded-type questions, Surprisingly, English as a home language provided less advantage for calculating embedded questions.

Take-home messages: Students need support to develop extraction of embedded quantities.

8DD/16
Evaluation of session in pharmacology: Autobiography of drugs: A learning experience

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Background: Student-centred activities have been developed in Pharmacology teaching for medical students to make teaching more interesting and relevant. This study reports on students' perception of new form of teaching learning method in Pharmacology i.e. "Autobiography of Drugs".

Summary of work: Study participants were Second M.B.B.S. students. In one session, 4 Autobiographies were displayed in relation to Pharmacokinetics, Pharmacodynamics, Pharmacotherapeutics, and Pharmacovigilance of particular drug. Subsequently students were supposed to identify the name of drug/drug group. Next session of 60 minutes includes evaluation of module in terms of quality, content, usefulness (on 5 Point Likert Scale). Data was analysed using SPSS version 15.1 and applying Z test.

Summary of results: It was reported that new module on "Autobiography of Drugs" was a positive learning experience.

Conclusions: Various studies seem to demonstrate that activation of prior knowledge and recall of information with help of innovations in teaching can lead to conceptual change in the way students learn. Active Learning Modules of this type attempt to minimize rote learning and passive learning in large or small classroom setting and can be an effective form of teaching and learning activity. It can be used in traditional course as a complement to lectures, and be a part of integrated curricula.

Take-home messages: Learning can be improved by ability to create significant learning environment, in form of innovative teaching modules.

8DD/17
Integrated learning of modern and applied Thai traditional medicine by peer teaching

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Background: To promote Thai traditional medicine and standard Thai herbal products to Asian harmonization, the policy of Ministry of Public Health (Thailand) is focusing on increasing utilization of Thai herbal medicine for treatment of various diseases instead of importing drugs from aboard. However, most of physicians may not have good attitude and knowledge in applying Thai medicine and could not have good collaborations with Thai medical doctors. Thus, this study aims to improve the attitude and knowledge of Applied Thai medicine to medical students.

Summary of work: Fifteen sixth year medical students and 15 fourth year applied. Thai medical students were recruited and divided into 5 groups. Each group was assigned to take care of a postpartum woman who was 24-48 hours after normal delivery with no complications. The students in each group had to discuss and teach each other in the topic of postpartum care. Pre and post knowledge tests and training evaluation model by Kirkpatrick was used. All the patients were asked to complete a short questionnaire regarding their satisfaction from the combined treatment.

Summary of results: All modern and applied Thai medical students were satisfied with this protocol. They all improved their knowledge especially the modern medical students that reported improving their attitude about applied Thai medicine and gaining confidence in working with applied Thai medical staff. Above all, the patients reported great satisfaction from the combined treatment.

Conclusions: The peer learning among students from two different courses could help improve their knowledge and attitude which may promote their good collaborations in the future.

8DD/18
Meeting recommendations to prepare future doctors for obesity management with patients

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Mark Perry (University of Manchester, Manchester Medical School, Manchester, United Kingdom)

Background: In response to the global obesity epidemic, clinical guidelines now encourage doctors to facilitate healthy diets and physical activity with patients. Accordingly, the UK's General Medical Council recommends that medical students graduate with competencies in discussing obesity and behaviour change with patients. Behaviour change is challenging and complex and an evidence base identifying theory-linked techniques to support patients with this exists. Research suggests however, that training fails to prepare doctors to tackle obesity with patients, and there is little evidence indicating effective medical education in this area.
Summary of work: GP trainees delivered theory-based obesity management education to 4th and 5th year medical students (n=34). It provided students with a practical behaviour change toolkit to use with patients in practice. Pre- and post-intervention questionnaires assessed students' communication skills and intentions to discuss obesity with future patients. Content analysis of students' written feedback and fidelity analysis of audio-recorded sessions enabled explorations about acceptability and feasibility of the session.
Summary of results: Students' were more likely, post-intervention, to 1) report intentions to discuss obesity with patients and 2) use effective communication skills. The intervention was highly valued by students and delivered consistently by tutors.
Conclusions: Behaviour change education for medical students may increase obesity management intentions and skills. This education was acceptable
Take-home messages: The evidence-base identifying behaviour change techniques can usefully inform medical education. Specifically, it may help in preparing future doctors for discussing obesity management with patients.

8EE Posters: The Teacher and Staff Development
Location: Terrace 1, PCC

8EE/1
Factors Related to Medical Teacher Burnout: An In Depth Interview

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Background: Medical teacher burnout consists of 3 dimensions; emotional exhaustion, depersonalization and personal accomplishment. High levels of burnout in three dimensions were found among staff in the Internal Medicine and Surgery Department. This study aimed to explore factors related to medical teacher burnout.
Summary of work: A qualitative study was conducted. Modified Maslash Burnout Inventory (MBI) questionnaire comprising three components of burnout questions was used for screening among medical teachers. Then, 13 staff (9 Medicine, 4 Surgeons) were selected for in depth interview and also assessing data triangulation by asking the same questions in different participants included burnout and not burnout teachers.
Summary of results: Factors associated with burnout among staff in Medicine included preference of service to teaching, low self-esteem regarding medical knowledge, high workload and expectation towards medical students. Factors relating to burnout among surgeons were lack of support from the Head of Department and high expectation towards students.
Conclusions: The shared factor that affected burnout was high expectation towards students. Internal factors such as service preference, low self-esteem were detected as well as external factors such as workload and lack of support from superior. Both personal factors and external factors of medical staff were related to medical teachers' burnout. However, the external factors were found affect to affect staff burnout more.
Take-home messages: External factors are major causes of medical teachers' burnout, thus the solution should be well organized.

8EE/2
Development of a Multi-Source Feedback System to Assess the Effectiveness of Postgraduate Clinical Supervision

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Background: With increasing public awareness of patient safety issues in health care, the quality assurance of medical training comes under the spotlight. Central to this is good clinical supervision, and, the need for a Multi-Source Feedback tool to assess its effectiveness. This work describes the development of a Multi-Source Feedback tool to assess the effectiveness of clinical supervision.
Summary of work: A with 25 item questionnaire with four-point Likert scale and an "unable to assess" category was developed as a self and peer assessment tool to assess clinical supervisors. Items addressed key competencies of the trainer's role relating to credibility, education knowledge, interest in training, supervision and training style and technical ability. Feasibility, validity, reliability, underlying correlations and agreements were explored.
Summary of results: 24 self-assessments, and 196 peer assessments (trainees = 107, fellow trainers = 89) were available. There was an 80% response rate. Questionnaire completion time for self-assessments was six minutes and nine minutes for peer assessments. Rating scores ranged between 3-4. Comparatively few items had high percentages of "unable to assess". Independent t-testing and an agreement plot suggested no significant differences in the trainee and fellow trainer scores. Principal component factor analysis identified six factors accounting for 68% of the total variance. There was high internal consistency reliability with Cronbach's α 0.93.
Conclusions: Psychometric analyses suggested that the Multi-Source Feedback questionnaire was an effective way to assess the role of the clinical supervisor with satisfactory reliability, validity, and feasibility.
Take-home messages: Multi-Source Feedback can be used to reliably assess the effectiveness of clinical supervision.

8EE/3
A voluntary, university-wide, peer-observation program: factors influencing implementation and faculty participation

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Background: Peer observation is an activity for faculty to review and provide constructive feedback on activities related to teaching. Guidance is required to develop a scholarly yet safe environment for faculty to participate and communicate their teaching practices. The purpose of this study was to survey faculty on the implementation and usefulness of a voluntary peer-observation program for Ross University School of Medicine educators.

Summary of work: A pre-experience survey was sent to faculty during the Spring 2012 semester to assess their opinions on the implementation of a university-wide, peer-observation program. In July and August 2012, two peer-observation training sessions were offered to participating faculty. Participants provided feedback on the usefulness of the program via an open forum and a post-experience survey. Qualitative data was analyzed via the grounded theory method to develop a framework for successfully implementing faculty development programs at the university.

Summary of results: Major concerns by faculty for implementing a peer-observation program included: scheduling, involvement by administration and training. Sixty-three faculty members participated in the training sessions and fifty-three responses were received for post-experience feedback. All participants found the activity beneficial for their teaching with factors such as advanced scheduling and inter-departmental collaborations as suggestions for further developing the program.

Conclusions: By assessing faculty opinions, a peer-observation program was tailored to address campus-specific factors influencing its acceptance and success; contributing to the development of a framework for implementing future campus-wide, faculty-development programs.

Take-home messages: The inclusion and involvement of faculty during all planning stages of a new campus-wide program leads to improved success for its implementation.

8EE/4
Changes in Students´ Perception of the Importance of Teacher Roles after Basic Cycle of Medical Course

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Background: The experiences of the students during the basic cycle of the Medical Course may modify their opinions about the importance of the different roles played by their professors.

Summary of work: On the first day of the activities (2011), 76 first-year medical students responded to a questionnaire (5-point Likert scale) with items related to the roles of a good teacher. Two years later (2013), in the beginning of their clinical studies, the questionnaire was applied again.

Summary of results: The characteristics most appreciated during the first phase were: professional competence, capacity to teach practical lessons, being a good investigator, being a good lecturer and being able to act as a tutor. Comparison of the results of the two phases revealed significant differences in the appreciation of the competence as lecturer ($P=<0.0001$), as researcher ($P<0.0001$), as tutor ($P=0.002$) and to professional competence ($P=0.01$), which started to be less appreciated. In the second phase the roles of curriculum and course planner, producer of teaching material, courses evaluator and institutional involvement started to occupy higher positions in the classification attributed by the students.

Conclusions: Third-year medical students and recently admitted students have different views of the importance of the various roles of a teacher.

Take-home messages: As students progress along the medical course, their perception of the importance of the teacher roles as researcher and lecturer tends to decrease and other roles, such as planner and evaluator tend to be more valued.

8EE/5
Teachers' attitudes and perceived barriers to the development of nursing education: a multi-centre study

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Background: Nursing education is well-established in Palestine with more than 15 institutions across the country graduating more than 300 nurses each year. Nursing educators responsible for this are largely practicing nurses and others who are fully committed to teaching. To date, there was no research to explore the attitudes and perceptions of those nursing educators towards their working environment

Summary of work: A quantitative design was chosen and a structured 23-item questionnaire was administered to nursing teachers working at 6 colleges of nursing during the period: October 2011 to October 2012. Areas studied included demographic characteristics, perception of the work environment, barriers to development and methods of education.

Summary of results: Of the 85 participants, 51 (60%) were female and 34 (40%) were male. The age distribution was as follows: 25-39 years = 34 participants

(40%), and > 40 years = 51 participants (60%). Most participants (n = 69, 81%) were master degree holders and 45 (53%) had more than 10 year teaching experience. Although the majority (62%) of respondents reported lack of educational resources, 40 (47%) participants were positive about their working environment. Factors like inadequate resources (65%), lack of promotion opportunities (71%) and low income (53%) were reported as hinders of nursing education development. Interestingly, 51% of nursing educators use a blended form of face-to-face teaching enhanced with e-learning technology compared to 49% of participants who reported the use of face-to-face teaching as their sole and preferred modality of education.

Conclusions: This is the first study in Palestine that explores attitudes of nursing teachers towards their work environment. The identified barriers to staff professional development and career progression highlight the attention that must be paid to faculty members' well-being. The use of e-learning in a blended format may also need to be further encouraged.

8EE/6
Feedback for Peer Assisted Learning using a visual analogue scale: quantitative and reliable but time consuming

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Background: Asking students to mark a categorical scale between 'strongly agree' and 'strongly disagree' is a commonly used method to obtain feedback for educational sessions. The visual analogue scale (VAS) offers more quantitative, accurate and insightful representations of opinion. However, interpretation of VAS may be open to inter-observer variability, and be more time consuming than a score out of 100. Aims: 1) Evaluate the inter-observer variation in the assessment of VAS. 2) Compare the time taken to assess feedback from VAS against feedback from a score out of 100.

Summary of work: Feedback was obtained from three peer-led undergraduate educational workshops. Six VAS assessed student agreement with six qualitative statements. Two investigators independently scored the VAS and the intraclass correlation coefficient was calculated. Scores out of 100 were generated for 10 sets of feedback. We then calculated time taken for measurement and data entry of 10 completed VAS and 10 'scores out of 100'.

Summary of results: 47 feedback forms were obtained from 3 workshops and a total of 282 VAS were assessed for inter-observer variability. The intraclass correlation coefficient was 0.994 (p<0.001). VAS assessment and

data entry took a mean of 26.75s longer than the 'score out of 100' method (p<0.001).

Conclusions: VAS is a repeatable and reliable method for obtaining feedback from educational sessions, but it is more time consuming than the 'score out of 100' method.

Take-home messages: Educational feedback using VAS is quantitative and reliable, but time consuming.

8EE/7
Student Evaluation of Teaching (SET) – An exploratory study in medical education

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Background: The focus of this study was to examine clinical teachers' perceptions of and responses to Student Evaluation of Teaching (SET) with respect to the purposes and uses of SET in enhancing their clinical teaching.

Summary of work: An explanatory sequential mixed-methods approach was employed to collect data from a group of clinical teachers. Quantitative data were initially collected by the adapted survey 'Approach to Feedback Inventory' (Hendry, Lyon, & Henderson-Smart, 2007) and subsequently qualitative data were obtained from semi-structured interviews conducted with the clinical teachers.

Summary of results: A total of 37 clinical teachers completed the adapted survey and five clinical teachers undertook the interviews. These clinical teachers perceived the main purpose of SET was quality assurance. They were moderately receptive to the SET feedback. Institutional requirements, operational practices, personal biases and support provided are four key factors in enabling or inhibiting clinical teachers' responses to SET.

Conclusions: The core mechanism in influencing clinical teachers' perceptions of and responses to SET depends on the interrelationships among the four different spheres of influence found in the study: clinical teachers' understanding of SET, pedagogical knowledge, emotional responses and provision of practical support.

Take-home messages: It is imperative to provide clinical teachers with professional development opportunities to enhance their understanding of SET and its relationship to effective teaching. Provided that the clinical teachers perceived SET feedback as a component of up-skilling their teaching practice, and with appropriate practical and emotional support offered by the institutions, it could lead to modifications and enhancement in their clinical teaching.

8EE/8
Aligning scientific production in medical education with curriculum change

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Background: In 2006, our medical school implemented a new curriculum passing this way to integrate the transformation of Brazilian medical schools. During this trajectory assumes a greater involvement in medical education and a search by applying innovative methodologies consistent with the educational project of the course.
Summary of work: This work proposes to map the scientific production on medical education of teachers of medical school during the development process of the new curriculum. An exploratory and analytical study about medical education in the period from 2001 to 2012 and four document types were defined: papers published in conference proceedings, book chapters, books and journal articles.
Summary of results: Of the 123 teachers in medical school, 37 (30%) has scientific literature in medical education, with an average of 8.4 works per teacher. There was a growing trend in publications from 2004, with 29.7% of teachers with publishing and a peak in 2009 with 40.5%. Most teachers, 67.6%, published in proceedings of national conferences (54.1%) international events (13.5%) and 4 (10.8%) published articles in journals. Three teachers published in the book. The majority 96.4% of the works are by multiple authors. The themes were about the internship, student assessment, program evaluation, training, and humanization skills.
Conclusions: The scientific production of teachers and students shows a tendency for growth and to discuss aspects of the new curriculum. The curriculum change comes as a positive factor for this production.
Take-home messages: These teachers may be invited to stimulate a research network with other teachers and students to build scientific knowledge in collaboration.

8EE/9
The roles of the medical teacher: juggling expectations from faculty and students

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Background: The different roles of the medical teacher include: information provider, facilitator, assessor, curriculum planner, resource developer and role model. With a move towards student-centred, problem-based and integrated teaching in our medical undergraduate curriculum over the past 2 years, roles of teachers have evolved. It is important to know how such changes are perceived by teachers and students.
Summary of work: The questionnaire (AMEE Medical Education Guide 20) used to assess perception of the importance of the twelve roles was administered to the teaching faculty. Two batches of 4th year medical students were invited to respond to the questionnaire as to what they perceive the roles of their teachers to be.
Summary of results: Teachers rated role model and facilitator as most important; information provider and resource developer as least important. Students also rated facilitator as most important and resource developer as least important but information provider was rated as most important to their learning.
Conclusions: Differences in perceived roles of teachers need to be addressed for effective teaching and learning. Teachers and students may not be ready to adopt the student-centred approach. Teachers also need to adapt to facilitated learning rather than just acting as information providers.
Although problem-based learning is more relevant, not all students and teachers are ready. Singapore's educational system may be spoon feeding students with too much information and very close guidance by the teachers.
Take-home messages: Addressing differences in expectations of the roles of teachers is important. It would be crucial that the move towards a more student-centred approach in our medical school be implemented in a gradual process.

8EE/10
Teaching and Learning for New Medical Academics: The Malaysian Perspectives

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Background: The transition into academia from clinical context for new medical academics requires them to learn the educational theories and pedagogies relevant to medical education. The learning during transition stage, termed a 'critically intensive learning period' (Kilminster et al., 2011), allows new medical academics to cope with the complexities of teaching and learning.

In order to cope, new medical academics also bring with them their past experiences (Hager and Hodkinson, 2009). This study aims to understand the transitional learning processes of new medical academics by studying their perception of learning experience in transition.

Summary of work: 12 new medical academics were interviewed face to face in between December 2012 and January 2013. All interviews were recorded and transcribed verbatim. Transcripts were read repeatedly to identify emerging themes in relation to the research questions.

Summary of results: Most new medical academics joined the university without actually knowing what to expect or do when they started their career. They learn how to teach by emulating good practices of their previous teachers and senior colleagues. The introduction of teaching and learning course has opened up their eyes to other teaching and learning techniques and therefore improves their teaching and learning practices.

Conclusions: New medical academics transition into academia can be eased by attending a teaching and learning course as early as they start their career. This course helped new medical academics to better understand their new teaching roles and responsibilities.

Take-home messages: Teaching and learning course is an important aspect in improving new medical academics teaching and learning practices.

8EE/11
Strategies for staying creative in health professions education – suggestions from workshop participants

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Background: The growth and success of individuals as well as organizations/institutions depends significantly on their ability to adjust to new challenges and to 'push the envelope' to create a future for themselves. Yet there are many barriers that stifle innovations, some are coming from the individuals involved in the educational process, others are deep seated in the institutional culture or some administrative conventions.

Summary of work: Over the last 6 years 16 workshops were held to address creativity in health professions education. They had various emphases (e.g., institutional factors, how to measure creativity, faculty development), but at the end of each program participants were asked to identify several creativity-promoting strategies which they could apply in their own lives over the following 6 months. After writing these suggestions to themselves on a postcard they had to put it in a self-addressed envelope for future mailing. By checking off a consent box they gave permission to enter their suggestions into a collection of resources

that would be made available for future workshop participants.

Summary of results: Over 250 suggestions were collected and transcribed. The authors are in the process of performing a content analysis to derive at a representative list of suggestions that can be of use way beyond the individual workshops. Examples are: Regularly schedule "thinking time," talk about and record your ideas and those of others.

Conclusions: The workshops resulted in a useful list of ideas for maintaining and enhancing personal and institutional creativity.

Take-home messages: There are many strategies to become/stay creative.

8EE/12
Creating a preceptor professional development program in veterinary medical education: step one a needs assessment

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Background: It is assumed that preceptors at distant clinical sites require support in the areas of education and desire continued professional development. A needs assessment is critical first step in designing a Preceptor Professional Development Program that is both relevant and delivered in a user-friendly format.

Summary of work: The needs assessment has been undertaken to determine training and professional development needs of preceptors involved in clinical training. These needs will be merged into Boyer's four areas of scholarship (discovery, integration, service, and education). The project steps will be: 1) define key stakeholder groups, 2) conduct focus group interviews with stakeholders, 3) identify common themes, 4) utilize common themes to develop and administer a survey to the larger preceptor population, and 5) analyze survey outcomes to determine priorities for training and professional development materials.

Summary of results: One face-to-face and one LinkedIn focus group with preceptors have been conducted. Participants felt strongly about needing more training in evaluating and grading students and best practices for teaching students trained in a PBL program. They indicated a desire for continuing education related to clinical practice with an emphasis on hands-on training methods. For those still early in their clinical career, opportunities for board certification or specialty training would be appealing.

Conclusions: The areas of preceptor development identified in the focus groups conducted thus far appear to merge into Boyer's four areas of scholarship.

Take-home messages: Boyers's four areas of scholarship appear to be an applicable model for a preceptor professional development program.

8EE/13
Identifying the main training needs of postgraduate medical program managers based on a mixed-methodology

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Background: The training of postgraduate medical program managers (PGPM) is essential for the proper development of their programs. The aim of this study was to identify the main training needs of PGPM at the Pontificia Universidad Católica de Chile Medical School (PUCMS).
Summary of work: A mixed-methodology approach was implemented including focus group/interviews and the administration of the Program Managers Training Needs Assessment Questionnaire (PROMANAQ) developed by an expert panel with 59 items (two sections: relevance/performance-self-perception). Higher priority was assigned to items with high relevance and low performance.
Summary of results: Forty five PGPM completed the PROMANAQ (84.9% response rate). Both sections of PROMANAQ were highly reliable (Cronbach alpha of 0.95/0.974 for relevance/performance-self-perception, respectively). The items with higher priority value were evaluation of clinical educators, evaluation of teaching programs and accreditation of programs. Ten PGPM were included in the focus group (18.9% of the universe) and findings of the qualitative component were concordant with the areas explored in the questionnaire.
Conclusions: Qualitative and quantitative research offer complementary information. PGPM actively participated in both activities reflecting their interest in having a voice regarding their needs for further training. The PROMANAQ is valid and reliable to identify the training needs of PGPM and it could be helpful for faculty development in postgraduate programs in different specialties.
Take-home messages: The views of PGPM must be taken into account for faculty development planning. The PROMANAQ can be considered as a good instrument to use in faculty development initiatives.

8EE/14
Inter-professional learning communities of practice as a collaborative platform for faculty development among clinical teachers

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Background: Peer learning based on the concept of community of practice has been proposed as a new approach for faculty development. The aims of this study are (1) to investigate whether the community of practice model is feasible to encourage inter-professional peer learning and practice among clinical teachers, and (2) to analyze the characteristics of participants and the themes of health and educational issues among these projects.
Summary of work: From Jan. 2012 to Jan. 2013, Center for Faculty Development at Kaohsiung Medical University Hospital in Taiwan called for projects to invite inter-professional clinical teachers across different departments to form the learning communities of practice focusing on general medicine, clinical teaching, and personal development. Data analysis was performed based on the collections of proposals and reports.
Summary of results: Totally 574 of clinical teachers self-organized 58 projects of learning communities of practice. The majorities were physicians (35.7%), nurses (30.0%), laboratory technicians (30.0%), pharmacists (6.6%), and other health professionals (27.7%). Each team encompassed 2 to 5 disciplines of health professionals. First theme of general medicine included 24 projects (41.4%) on health quality, patient safety, infection control, medical communication, evidence-based medicine, and palliative care. Second theme of clinical teaching included 18 projects (31.0%) on teaching methods, assessment, course design, and teaching resource development. Third theme of personal development included 16 projects (27.6%) on research expertise, humanities, leadership, and career development.
Conclusions: Learning communities of practice have created a platform to promote peer learning among inter-professional clinical teachers.

Take-home messages: Inter-professional learning communities of practice provide a collaborative approach for faculty development.

8EE/15
The development and evaluation of the nursing preceptor's advanced teaching training program in Taiwan

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Background: The purpose of this study is to develop and evaluate the effects of an advanced teaching training program on the clinical nursing preceptors in Taiwan.
Summary of work: A single-blind quasi-experimental pretest–posttest design was used. A total sample size of 60 preceptors (including OR, PACU, ER, Surgical and medical nurses) and their one to one preceptee the novice nurses were chosen from a medical center in Taipei, Taiwan from March. 1, to Jul. 31, 2011.
The preceptors were divided randomly into an experimental group and a control group, which was consisted of 35 subjects and 25 subjects accordingly. The advanced teaching training program, which is a 3 times Objective Structured Teaching Exercise (OSTE) workshop, everytime the workshop including a 120-minutes 1-minute preceptor (OMP) lecture and feedback discussion. Data were collected by pre and post OSTE evaluation and subjective structured questionnaires devised by the researchers, included a preceptor's self-evaluation questionnaire on teaching skill, and a novice nurse's self-evaluation to assess the benefit of the preceptor's teaching (Fig. 1). The data were analyzed by SPSS 19.0.
Summary of results: The results were as follows: The OSTE posttest and self-evaluation score of the experimental group were significant higher than the control group analysed by Generalized estimation equation (GEE). However, their preceptee the novice nurse's self-evaluation assessed the benefit of the preceptor's teaching did not make a difference between two groups.
Conclusions: The results show the advanced teaching training program in this study could enhance the teaching competency of the nursing preceptors.
Take-home messages: The advanced teaching training program, including 1-minute preceptor (OMP) lecture, giving feedback, discussion and the Objective Structured Teaching Exercise (OSTE) may effective promote the teaching competency of the nursing preceptors in Taiwan.

8EE/16
E-portfolios - suggestions for successful implementation based on a survey of user experiences

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Background: Use of portfolios in general and E-portfolios specifically have continued to expand in health professions education. Portfolios provide an opportunity for learners to document and reflect on their learning. Our faculty development program requires a fieldwork practicum of specific activities. These experiences are documented in an "E-portfolio" which is assessed by program preceptors. Learners are permitted to use an E-portfolio platform of their choice.
Summary of work: To explore learner and faculty experiences in creating an "E portfolio", 60 graduates of our fieldwork practicum were surveyed by e-mail using a 10 item questionnaire consisting of open and closed ended questions. Research ethics approval was received in August 2012. Participants were asked about their experiences in creating portfolios.
Summary of results: In general learners were able to use the platform of their choice without great difficulty. User friendliness, ease of use and adaptability of platforms were appreciated by participants. On the other hand participants disliked platforms that were time consuming to build and not adaptable. Concerns about privacy of information were raised about publically available platforms.
Conclusions: Our program provided a real-life test of various platforms for learners to use to document their learning. Overall usability of the platform and adaptability were the most important factors in determining which portfolio platform was selected. Learners highlighted the learning curve in using a new platform and the importance of peer coaching and IT support.
Take-home messages: Our study demonstrates that it is possible to successfully implement an e-portfolio in a faculty development program and identifies areas where learners and faculty will need support.

8EE/17
Inspiring to follow Langdell's steps in an on-line faculty development course

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Background: At the end of the nineteen-century, Christopher Langdell introduced the Case Method in Harvard Law School. He believed that the most important intellectual activity is the study of real

situations in order to obtain own conclusions. He compiled his own Selection of Cases on the Law of Contracts and proposed the Socratic Method as a tool to ask questions and discuss facts and points of conflict.

Summary of work: We design an on-line Faculty Development Course in order to invite our Basic Science professors to be inspired by Langdell, and design their courses based on a Selection of Cases instead of using lectures and memory training.

Summary of results: The experience of design cases as an instructional tool reaffirms the importance of teaching Basic Sciences in Clinical Scenarios using theoretical information in solving problems. The course participants took part in discussion forums and designing cases according with their academic programs. At the end of the course they uploaded evidences of their own experiences using cases and had a portfolios with their own Selection of Cases

Conclusions: It´s possible to teach Basic Sciences using a Selection of Cases.

Take-home messages: Cases are an ideal tool for medical professors and students.

8EE/18
Microteaching is a method of learning skills of teaching: Basic workshop by web based learning

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Background: Microteaching was devised by Allan on 1963

Microteaching is a method of learning skills of teaching. A trainee teacher can learn and master various teaching skills by this method whereas an experienced teacher can master his preexisting skills of teaching microteaching in a short session of teaching by a trainee teacher for a period of 5-7 minutes. The audience is a peer group who carefully observes the session and provide feedback to the trainee teacher at the end of the session. The cycle repeats till a satisfactory level is achieved.

Summary of work: To acquaint the medical teacher with this technique of microteaching and seek result and feedback on these experiences after being equipped with the technique. Workshops were conducted for medical teachers from junior middle level faculty under the auspices of the Medical Education Unit of SMS Medical College Jaipur.

Summary of results: An online feedback from trainees obtained a very positive reaction as the trainee teacher not only gained confidence in their teaching but also improved performance during classroom teaching. About 63 % of participants of the workshop responded to show positive improvement.

Conclusions: Despite the fact that medical teachers have acquired senior positions in their institutions, they have never been trained as teachers. Hence, the

shortcomings in their teaching skills persist throughout their carrier. They found microteaching an important tool for arming their teaching skills towards betterment of their teaching capabilities and the teaching programme in the medical college as a whole. The results are obvious with a strong positive note.

Take-home messages: Microteaching is an important tool for arming their teaching skills towards betterment of their teaching capabilities and this can be added by web based learning.

8EE/19
The influence of residents' characteristics on their perception of faculty's teaching performance

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Background: In ensuring high quality residency training, residents' evaluations are widely used to assess faculty's teaching performance (TP). In this study we aim to evaluate the influence of residents' characteristics on their perception of faculty's TP. Residents' ratings of faculty's TP are collected using the well researched System for Evaluation of Teaching Quality (SETQ).

Summary of work: From September 2012 to February 2013 a multicentre questionnaire study amongst 271 surgery and gynaecology residents was performed. In addition to completing the SETQ evaluations for faculty, residents were invited to fill out 4 standardized measures of work engagement, physician empathy, job satisfaction and specialty satisfaction. Analysis included (i) Pearsons' correlations coefficients and (ii) multiple linear regression to assess the associations between the 4 measures and faculty's total TP scores. Models correcting for TP score ranking will be presented.

Summary of results: 204 (75.3%) residents completed the SETQ evaluations; 145 (53.5%) residents returned the engagement, empathy and satisfaction measures, and 129 (47.6%) residents completed all measures. There was a significant correlation between TP sumscores and residents' engagement (r=0.206; p=0.020), empathy (r=0.181; p=0.044) and job satisfaction scores (r=0.227; p=0.010). No significant correlation between TP and specialty satisfaction was measured. Higher levels of residents' empathy were associated with higher faculty's TP scores (beta=0.187;

p=0.034). There was no significant association between residents' job engagement or job satisfaction and TP scores.

Conclusions: When assessing faculty's teaching performance it is important to keep in mind that residents' empathy could be an influencing factor in their perception of faculty's performance.

8FF ePosters: Postgraduate Education 1
Location: North Hall, PCC

8FF/1
Can a multi-faceted programme of education improve prescribing and error reporting among Irish junior doctors?

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Background: Medication errors can cause significant morbidity and mortality. Studies indicate that prescribing among junior doctors is sub-optimal and prone to error; however serious errors are often grossly under-reported by this cohort of prescribers.
Summary of work: This study examined the prescribing of cardiovascular, anti-microbial, anti-psychotic, analgesic, anti-coagulant and hypoglycaemic agents by junior doctors in a national tertiary referral centre. Reportable errors were cross-referenced with the Medication Safety Coordinator to determine reporting compliance. A multi-faceted intervention strategy is being developed, based on the results, and will be delivered to prescribers. It will encompass feedback of the audit data, online tutorials, facilitated remediation and supervised prescribing. A re-audit will be performed to assess the impact of this intervention.
Summary of results: 62% of medication orders (n=1569) contained at least one error. Technical errors in prescription writing were more common than errors in clinical judgement (90% vs. 10%). Cardiovascular drugs, analgesics and anti-microbials were most commonly implicated in error. 27 (1.72%, n=1593) reportable errors were detected, of which none were reported at time of analysis.
Conclusions: Junior doctors are our most frequent prescribers, and make errors regularly when prescribing, most commonly in the physical act of writing a prescription. Error reporting is poor. The planned intervention will educate junior doctors on human error theory, good prescription writing practices, the importance of documentation and the hospital's error reporting system. Re-audit will demonstrate if this proactive educational programme can improve prescribing and error reporting among junior doctors.
Take-home messages: A multi-faceted educational intervention may improve prescribing and error reporting among junior doctors.

8FF/2
Better Training, Better Care: Changing the model of working to improve training and support for trainees and quality of care for patients

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Background: Health Education England has sponsored East Kent Hospitals University NHS Foundation Trust as part of HEE's Better Training Better Care Project. EKHUFT's project has been to redesign the medical model of working.
Summary of work: The model was redesigned to give all trainees experience of 'hot' spells of emergency work and 'cold' spells of working on the wards. In addition, a multiprofessional weekend team was created to support the F1 doctor on the wards and ensure that the 'hot team' can focus on the admissions. This 'cold' weekend team consists of a medical registrar, a senior nurse and a healthcare assistant, in addition to the pre-existing F1 doctor.
Summary of results: Both quantitative and qualitative data show: Enhanced training opportunities; Improved handover; Improved supervision; Enhanced and consolidated learning around both the acutely ill and the stabilised patient; Timely and effective review of patients; Trends towards reduced length of stay, greater numbers of discharges, improved mortality rates - at weekends.
Conclusions: In addition to enhanced training and patient care, it was important to demonstrate cost-effectiveness to ensure sustainability and replicability. This pilot shows evidence of improvements to both training and patient care with the latter projecting potential savings.
Take-home messages: Separating emergency and ward working with a carefully designed model, enhances trainee experience and improves patient care.

8FF/3
The end of the surgical F1 - a justifiable proposition?

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Background: Surgical Foundation posts are under threat from plans to convert significant numbers into primary care in an effort to improve the educational experience offered. The aim of this study was to gather opinion from foundation doctors, to determine the contemporary educational value related to subspecialty interest.
Summary of work: One hundred and three F1 doctors working across a spectrum of surgical specialties in a single UK postgraduate deanery completed anonymous questionnaires related to their overall educational experience.
Summary of results: Seventy-six percent reported their overall experience was positive or strongly positive; 95% considered themselves adequately or excellently supported by their immediate senior, and 93% by both their SpRs and Consultants. Experience of elective surgical admissions was modest, but 91% of doctors clerked on average more than >5 emergency patients per week, and 78% gained operating theatre exposure. Procedural skills were also gained (86% performing ABGs, 73% suturing, and 57% performing minor surgery). Scholarly activity and academic interests were also well supported, with 88% reporting the opportunity to participate in audit projects or research. In contrast 45% of doctors were of the opinion that there was too little formal teaching provided. Opinion on EWTD was divided, with 68% in support of the restrictions. There were no significant differences in educational experiences relative to surgical specialty interest (p=0.98), and 91% would recommend their job to a final year student.
Conclusions: Overall Surgical F1 jobs were well supported, providing a wealth of clinical and academic experience.
Take-home messages: More evidence is needed to justify reduction and conversion of surgical F1 posts into primary care.

8FF/4
Simulation-Based Directed Self-Regulated Learning vs. Instructor Regulated Learning of Advanced Cardiac Life Support (ACLS) Skills – A Randomized Trial

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Background: Simulation-based mastery learning of ACLS skills is effective. Traditional ACLS courses incorporate instructor regulated learning (IRL). Directed self-regulated learning (DSRL), where an educator designs the self-regulated learning, may provide an effective and less resource intensive way to teach ACLS skills.
Summary of work: Forty first-year internal medicine residents at the University of Toronto participated in a randomized trial comparing simulation-based DSRL to IRL of ACLS skills, using a mastery learning model. The DSRL group was provided simulation scenarios, assessment instruments, instructions to conduct a focused debriefing and access to relevant resources to direct their own learning. The IRL group had access to the same materials, but the teaching and feedback provided was at the discretion of the instructor.
Summary of results: After controlling for pre-test scores of performance on a simulated ACLS scenario, there was no significant difference between post-test scores in the DSRL and IRL groups, $F(1,37) = 0.007$, $p = .935$. Residents in the DSRL group were significantly more likely to express a desire to train in the IRL group than the converse ($p =.001$). Both groups agreed that participation within their assigned group was an effective way to learn ACLS skills, however, residents in the IRL group more strongly agreed with this ($p =.016$).
Conclusions: DSRL is as effective as IRL in teaching residents ACLS skills. Despite the benefits associated with DSRL, residents prefer to learn in an IRL environment.
Take-home messages: DSRL is effective for learning ACLS skills. Research is needed to understand why residents are resistant to DSRL and how to increase acceptance.

8FF/5
The development and prevalence of musculoskeletal disorders in orthopaedic surgery and internal medicine residents

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Background: It has been shown that surgeons are at risk for the development of musculoskeletal disorders (MSKD) due to the ergonomic stresses of the operating

room, which can translate to loss of work time and productivity. However, little work has been done investigating the prevalence of MSKD in residents. This study looks to investigate the prevalence of MSKD in orthopaedic surgery and internal medicine residents.

Summary of work: The Physical Discomfort Survey was distributed to all orthopaedic surgery and internal medicine residents at the University of Toronto. The prevalence of musculoskeletal symptoms in specific anatomical regions was compared between the two groups.

Summary of results: Fifty percent of residents responded to the survey. Internal medicine residents reported a prevalence of 69%, 68% and 51%, and orthopaedic surgery residents reported a prevalence of 58%, 51% and 47%, for upper extremity, back and lower extremity MSKD, respectively. Internal medicine residents had a higher prevalence of neck symptoms (53% vs. 28%, $p=0.01$) and upper back symptoms (31% vs. 9%, $p=0.01$) than orthopaedic surgery residents.

Conclusions: This data suggests that both orthopaedic surgery and internal medicine residents have significant MSKD. Thus, the impact of residency training on MSKD in residents should be acknowledged for both groups. The implementation of early interventions could be beneficial in the prevention of future significant MSKD in physicians.

Take-home message: Internal medicine and orthopaedic surgery residents at the University of Toronto experience significant MSKD, and awareness of this area of resident health could prevent the development of MSKD in the future.

8FF/6
New Initiatives In Registrar Training

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Background: A need for professional development in the training of registrars was identified by the School of Medicine, University of the Free State, in 2007. The module on Health Care Practice (GPV703) was developed to address these shortcomings.

Summary of work: A quantitative study, enhanced by qualitative methodologies, was conducted. A self-administered questionnaire that included a rating scale and open-ended questions was used. The quantitative responses were statistically analysed using Microsoft Excel, and the qualitative statements were edited, categorised and summarised.

Summary of results: The questionnaire was completed by 38 (95%) of 40 registrars. On the quantitative questions regarding the orientation session, content and applicability of the content of the module, the majority of registrars showed satisfactory to very good responses. Of the 40 questionnaires collected, 31 (77.5%

response rate) were completed by Heads of Department on the insight of registrars into the module. Seventeen above-average and 14 average scores were given showing a significant improvement in the competence of registrars. No under-average scores were given.

Conclusions: The study focused on the quality assurance and improvement of the module. The module in Health Care Practice, as part of the MMed programme, was found to add value and addressed aspects required by registrars to develop and/or enhance their skills, knowledge and professional behaviour with regard to Ethics, Practice Management and Patient Communication in their professional capacity and training. Registrars were generally satisfied with the content and presentations. The open-ended questions indicated some concerns that need to be addressed to improve the quality of the module.

Take-home messages: The strive towards excellence in Medical Education is essential.

8FF/7
The design, implementation and administration of an educational website for emergency medicine registrars in Australia

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Background: Southern Health Emergency network covers three campuses. It has > 60 + trainees at different stages in a 5 year vocational training program. There was a need to develop a communication and education strategy to provide coordination of educational opportunities for the trainees. There was no funding and no in house web design expertise.

Summary of work: Using online website development an educational website was built. There was extensive communication with key stakeholders regarding content and governance of the site. The trainees and the contributors to the site were surveyed and >95% of respondents were either satisfied or very satisfied with the website.

Summary of results: The results presented will include the process of engagement of stakeholders, the issues identified and the strategies for ongoing governance of the site.

Conclusions: A medical educator with no previous experience with website design can develop and implement a successful educational web site.

8FF/8
Teaching and learning Emergency Obstetrics in low-resource settings: an experience with different learning strategies and residents-as-teachers

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Background: Although competencies in emergency medicine are claimed crucial for medical students, some schools still face challenges in designing disciplines and opportunities for medical students to practice emergency procedures with clinical simulation. In our institution, emergency medicine for undergraduates has been restricted to experiences on theoretical basis and observations of ER consultations.
Summary of work: We describe our first experience in designing an eight-hour module on Emergency Obstetrics simulation for fourth-year medical students at a low-resource traditional medical school in Brazil. Summary of results: Students' learning objectives were previously established in accordance to national curricular guidelines for medical schools. We provided Ob-gyn residents with training on obstetric emergency simulation, feedback and assessment through objective checklists. Students practiced competences in small groups (eight to ten students), facilitated by a faculty and a resident-as-teacher, in a variety of strategies: brief communications, structured simulated scenarios with provision of theoretical written guidance and structured checklist, feedback by facilitators, debriefing and team-based learning activities. Students provided formal written module evaluation at the end of activities.
Discussion: The variety of activities facilitated students' engagement in this time-restrained module. The contribution of resident-as-teachers was a useful strategy, as students felt confident after simulations. It was also useful for training residents for teaching (and learning) emergency obstetrics.
Conclusions: An effective module on emergency obstetrics is possible when a careful planning is designed.
Take-home messages: The contribution of residents-as-teachers may be helpful in designing emergency modules in low-resource settings. Future challenges include designing similar longitudinal experiences throughout curriculum with effective integration of all medical areas.

8FF/9
Residents' Perspective of New Accreditation Council of Graduate Medical Education Ophthalmology Residency Program in Singapore

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Background: Graduate medical education in Singapore has long been overseen by surgeons and physicians appointed to the Joint Committee on Specialist Training (JCST). The JCST served to select trainees, establish and maintain structured training programs modelled after British training programs and accredit training centres. In recent years, Singapore has looked to adopting the American graduate medical education system and hence implemented the programs of the Accreditation Council for Graduate Medical Education (ACGME).
Summary of work: Having had the ACGME Ophthalmology program run alongside the department's original training program for more than a year, we would like to assess how residents feel about the program. A survey was carried out amongst all residents in the National Healthcare Group Ophthalmology Residency Program.
Summary of results: A total of 8 residents in the program were given a copy of the survey, with a response rate of 100%. 5/ 8 (62.5%) felt that overall the new training program is better than the original training program. However, 4/ 8 (50%) felt that the shortened training period may disadvantage them and 1 resident felt that the ACGME duty hours curtails learning opportunities. Nonetheless, on a scale from 1-5 regarding confidence of being able to work independently upon completion of the program, the mean score of all residents was 3.69 and the mode 4.
Conclusions: The new ACGME program provides a streamlined yet rigorous training schedule. Whilst the training period has been shortened, residents are confident that they will be equipped with the skills to work independently upon completion of the program.

8FF/10
Lean based learning among residents and registrars in a Dermatology Department

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Background: We have observed that the long and standardized training program in laser and surgery implies insufficient level of skills to manage approximately 10 percent of dermato-surgical consultations resulting in waste of resources, rework and over-refinement as experts have to perform missed procedures leading to increasing waiting time. By performing value stream mapping on surgical training courses, waste in the process of competence achievement will be identified and eliminated.
Summary of work: The pivotal management tool for this is a table listing required skills (rows) for each doctor (columns). The individual cells are coloured according to level of expertise: red (want to learn), yellow (can perform) or green (can perform and teach). All green cells thus become mentoring cells for corresponding red

cells. Red cells drag the lacking skills to the doctor and minimise waste by over-refinement by exposing her to repetitive clinical situations during classical training, allowing fast track training.

Summary of results: A cross-sectional measure of the competence level among all doctors before the start of the project and after 12 months will be performed. All diagnoses and treatment codes on all patients one month before project start and after 10 months of implementation will be measured. A measure of mean time to 75% and 100% competence acquirements for the young doctors will be calculated. The doctors' quality of life will be investigated by interview in a selected group of trainees.

Conclusions: We suggest that lean based education may increase the trainees' skills and competences faster because they are driven by their own wish for more learning and the patient need for specific treatments through visible evaluation of all doctors.

Take-home messages: Lean based learning may increase the learning curve of 'trainees and minimize waste consultations.

8GG ePosters: Patient Safety

Location: North Hall

8GG/1
Teaching disclosure of medical errors to pre-clinical students: a pilot study at Chulalongkorn medical school

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Background: Disclosure of medical errors is a topic in medical ethics section of the Thai medical council's standards for general practitioner. A group of Year 2 students chose to pursue their learning in this topic as a project in 'Medical Ethics & Critical Thinking' course.
Summary of work: Thirty students participated in the workshop. The principle of professional communication was introduced first. They were then divided into two groups (doctors and patients). Each group was oriented separately before role-playing in the OSCE format (5 cases of medical errors x 3 loops x 10 minutes). In addition to being assessed by 5 patients, each doctor assessed their own performance for each case. At the end, there was a group discussion to brainstorm and reflect on what they had learned from the workshop.
Summary of results: Overall, the scores correlated negatively with the difficulty of the cases. The three highest-rated items are (1) saying sorry (2) use of easy-to-understand language and (3) showing empathy. The three items with the lowest scores are (1) opening the conversation (2) giving complete and useful information and (3) patients being able to make decision by themselves. Most students had more understanding of how to disclose medical errors. More importantly, they learned from both doctor's and patient's perspectives from the same event.
Conclusions: Role-playing in the OSCE-style with feedback is the powerful tool to teach medical errors disclosure.

8GG/2
Training health care professionals in root cause analysis: post-training experiences, benefits and attitudes

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Background: Root cause analysis (RCA) is routinely applied to investigate patient safety incidents and facilitate organizational learning. Despite a limited evidence base, Scottish healthcare authorities – similar to those internationally - have invested in related training programmes and this is a cornerstone of many organizational policies for investigating safety-critical issues. Given the investment in people, time and funding we aimed to learn from the reported experiences, benefits and attitudes of RCA-trained staff.
Summary of work: We adapted a published questionnaire to undertake a cross sectional online survey of health care professionals formally trained in RCA by a single Scottish health board region.
Summary of results: A total of 228/469 of invited staff completed the survey (48%). A majority of respondents had yet to participate in a post-training RCA investigation (n=127, 55.7%). Of RCA experience staff, 71 had assumed a lead investigator role (70.3%) on one or more occasions. A clear majority indicated that their improvement recommendations were generally or partly implemented (82%). The top three barriers to RCA success were: lack of time (54.6%), unwilling colleagues (34%) and inter-professional differences (31%). Differences in agreement levels between RCA-experienced and inexperienced respondents were noted on whether a follow-up session would be beneficial after conducting RCA (65.3% v 39.4%) and if peer feedback on RCA reports would be of educational value (83.2% v 37.0%). Comparisons with previous research highlighted differences such as less reported difficulties within RCA teams (P<0.001) and a greater proportion of respondents taking on RCA leadership roles in this study (P<0.001).
Conclusions: The evidence points to an organisational learning need to provide RCA-trained staff with continuous development opportunities and performance feedback.
Take-home messages: Healthcare authorities may wish to look more critically at whom they train in RCA, and how this is supported educationally to maximize learning and safer patient care.

8GG/3
Doctors Teaching Patients and Trainees: finding common ground

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Background: Physicians engage in teaching both patients and trainees in the clinical setting. While these two fields of patient counseling and clinical teaching are considered separate in the literature, the two activities are frequently engaged in by the same physician and often at the same time.
Summary of work: We conducted semi-structured interviews with thirteen family physicians at a family practice teaching unit in Vancouver, Canada to explore how they conceptualize teaching patients and trainees. A thematic analysis was conducted in which separate sets of themes for teaching patients and teaching trainees were identified through an iterative coding process. We synthesized these two sets of themes and extracted the similarities and differences between them.
Summary of results: We identified four key areas of overlap between the two fields (being learner-centered; supporting the acquisition, application and integration of knowledge; role modeling; and facilitating autonomy) and four areas of divergence (aim of teaching; power differential; establishing rapport; and providing feedback).
Conclusions: Creating a common conceptual framework for counseling patients and teaching trainees would open up new avenues for improving training and practice in both domains. It may also facilitate knowledge translation between the two domains of scholarly inquiry.
Take-home messages: There is common ground in the ways that physicians conceptualize their teaching of patients and trainees. These commonalities include: taking a student/patient-centered approach; supporting the acquisition, application and integration of knowledge; role modeling; and facilitating autonomy in the patient and trainee.

8GG/4
Patient safety and quality leadership scholars program: Creating human infrastructure for teaching safety and quality

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Background: Recent initiatives in American medical education mandate the increased teaching of patient safety and quality improvement (PS/QI) to medical students and residents. These mandated activities, while valuable, are difficult to support logistically because few attending physicians have sufficient formal training in PS/QI to teach and lead such initiatives effectively.
Summary of work: A "scholars program" was developed and deployed to provide formal training to attending physicians within our healthcare system who were already engaged in PS/QI in administrative or teaching roles. The curriculum consisted of a 22-week course meeting 3.5 hours per week covering five general topic areas: (1) patient safety, (2) quality improvement, (3) leadership, (4) teaching, and (5) scholarship.
Summary of results: Twelve scholars participated in the inaugural course offering, selected from applicants based on their current involvement in PS/QI activities. The scholars used existing PS/QI projects within their hospital departments and units as test-beds for applying the weekly lessons. After providing a foundation of PS/QI theory and practice in the initial sessions, scholars focused on how to lead QI/Ps effectively, explored methods for effectively teaching these topics, and studied ways of establishing scholarly activities surrounding PS/QI. The program resulted in the implementation of two new QI initiatives and development of a program for clinical teaching of patient safety at the bedside.
Conclusions: The emerging demands for increased teaching and leadership of PS/SI topics mandates the development of an infrastructure of PS/QI teachers, leaders and scholars. A scholars program can develop this infrastructure.
Take-home messages: This scholars program provides an effective model curriculum for developing the human capital needed to teach PS/QI.

8GG/5
Forensic Risk Management Study Circle

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Background: The idea for the study circle emerged following concerns that were highlighted following a number of serious incidents that occurred at Rowan House Hospital. The reduced availability of forensic specific training and the limited length of forensic experience of clinical staff were identified amongst some of the contributory factors to these incidents. A consensus emerged that if forensic specific risk awareness training was made available to staff working in the clinical environment, this would lead to an overall reduction in the number of incidents.
Summary of work: FRMSC helped staff to facilitate and acquire skills and competencies. Study circle evolved according to its needs and ensured that issues can be addressed and overcome. Discussion and risk awareness training was tailored according to the needs of the specific service.
Summary of results: The recognition of forensic issues became easier for staff who were dealing with patients on a daily basis. This contributed to the ongoing

professional development of staff which in turn had an impact upon levels of risk awareness.

Conclusions: Aims and objectives of the Forensic Risk Management Study Circle were to develop and increase levels of forensic risk awareness working in the forensic settings and work collaboratively with other team members to reduce the number of clinical incidents.

Take-home messages: Learning increases the awareness about the subject and in turn contributes to recognition and ongoing professional development.

8GG/6
Designing an Educational Risk Report Form through risk analysis to monitor educational risk in Bhumibol Adulyadej Hospital, Bangkok, Thailand

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Background: Educational risk management is composed of risk identification, assessment, response, control, and monitoring. It is essential for quality assurance of both medical student and residency training and the patient safety. At Bhumibol Adulyadej Hospital, there are clinical and non-clinical incident risk report forms, but not educational risk report form. In this paper, we aimed to identify and assess educational risk profiles in our Hospital.

Summary of work: Two half-day Workshops on educational risk analysis using brainstorming method was organized. The medical teaching staff were divided into 3 groups. Each group was assigned to discuss one of the 3 different major aspects of educational risks; (1) Teaching and learning curriculum, (2) Evaluation system, and (3) Morals and ethics of medical student, resident and staff. All group objectives are to identify risks, assess degree of risks by "risk assessment matrix" method according to impact and likelihood, perform risk profiles and finally prepar risk response for high impact risk.

Summary of results: We got various risk profiles for each aspect. The profiles of each aspect, for example, were (1) lacking of appropriate supervision during medical procedure and inappropriate laboratory investigation, (2) examination leak and corruption (3) no responsibility and no discipline of both medical student and resident and also the unpunctuality of staff.

Conclusions: Educational incident risk report form of our hospital is finalized and can be enrolled for systematic management.

Take-home messages: The proper educational risk management system is important for medical training development and patient safety.

8GG/7
Developing an inter-professional teaching module for safe and practical prescribing

Yogini Jani (University College London Hospitals NHS Foundation Trust, Clinical Pharmacy, London, United Kingdom)
Reecha Sofat (University College London, Division of Medicine, Centre for Clinical Pharmacology, London, United Kingdom)

Background: Health professionals including doctors, nurses and pharmacists are educated in their discipline by senior personnel in their respective fields. In contrast the practice of clinical medicine is multidisciplinary. This is particular relevant in the choice, prescription, dispensation and delivery of drugs in clinical care. We aimed to explore the feasibility of teaching medical and pharmacy students in the same environment to introduce medication safety with a focus on prescribing.

Summary of work: Practical aspects of the teaching were delivered by clinicians and pharmacists in small mixed groups of medical and pharmacy students. Focus was on therapeutics and using this knowledge to prescribe safely, in so doing addressing common errors and pitfalls.

Summary of results: Teaching was initiated first for medical students only. The performance on therapeutics and medication safety OSCE stations was monitored year to year. Feedback was collected and reviewed.

Conclusions: Teaching practical therapeutics with a focus on prescribing improved performance on OSCE stations, a surrogate for real life prescribing. Feedback and quality of delivery was good and met the learning needs of both medical and pharmacy students.

Take-home message: Inter-professional teaching and learning mimics the real life working environment for both medics and pharmacists and introduces the need for inter-professional working early in their careers. Importantly it informs them of the need for safe prescribing early in the medical/ pharmacy careers, which can be potentially life saving.

SESSION 9: Simultaneous Sessions
Tuesday 27 August: 1600-1730

9A Symposium: Feedback: A fresh look at theories that inform perceptions, acceptance and use
Location: Congress Hall, PCC

Deborah Murdoch-Eaton (Leeds Institute of Medical Education, University of Leeds, UK)
Monica van de Ridder (Albert Schweitzer Hospital, Dordrecht, Netherlands)
Joan Sargeant (Dalhousie University, Halifax, Canada)
Chris Watling (University of Western Ontario, London, Canada)

Providing meaningful feedback to learners continues to challenge medical educators. Exciting recent progress, informed by theories from psychology, sociology and education, has advanced our understanding of feedback and its role in learning. Feedback has been reconceptualised from a simple transmission of information to a facilitated conversation between learner and supervisor. Theory informs approaches which enable learners to seek, receive, understand, accept and use feedback. The objectives of this symposium are to 1) review theoretical perspectives which inform the process of sharing feedback and 2) engage the audience in a discussion of how these theories might be applied in their settings.

9B Symposium: The role of multimodality instructional platforms in forging a meaningful continuity between preclinical and clinical education across the curriculum
Location: Meeting Hall I, PCC

P Gopalakrishnakone (YLL School of Medicine, NUS, National University Health System, Singapore)
Wojiech Pawlina (Mayo Clinic, USA)
Erle Lim (YLL School of Medicine, Singapore)
Cristian Stefan (Georgia Regents University, USA)
Ancuta Stefan (Georgia Regents University, USA)

Teaching preclinical subjects becomes more complicated especially the subject of Anatomy. Although Anatomy knowledge forms the basic foundation of medicine there is controversy of how to acquire this knowledge. There are conservative schools which strongly belief in the traditional cadaveric dissections and on the other end of spectrum is using virtual reality or using 3D modeling of the human body using CT Scan or MRI scan data. How much anatomy and histology knowledge is needed for medical students, residents in training or by surgeons for surgical planning? What are the advantages and disadvantages of the recently available information technology and computer software tools in teaching Anatomy?

9C Short Communications: eLearning iPads and Mobile Technology

Location: Panorama, PCC

9C/1
Motivation as a determinant factor in medical students' adoption of new technology

Ian Sampson (The University of Manchester, Medical School/Undergraduate, Stopford Building, Oxford Road, Manchester M13 9PT, United Kingdom)

Background: Increasingly, students are using mobile devices in clinical learning with some medical schools providing mobile devices. In Manchester Medical School, UK, we give all of our clinical medical students iPads (since Jan 2011). We explored the perceptions of students regarding using an iPad for clinical learning; purposively sampling high, moderate and low users.
Summary of work: We convened three focus groups with high, moderate and low users 5 months after they had been given iPads. Participants were in the 4th of a 5th year MbChB; 10 male and 8 female. Data were analysed thematically, using a constant comparisons technique. Themes were explored across low, moderate and high user groups to compare experiences within each theme.
Summary of results: Four themes emerged: motivation, learning, understanding and efficiency. Perceptions of efficiency were similar across groups. However, high, moderate and low user groups appeared to differ on their degree of motivation for engagement with the technology and this resulted in high users persisting more and thus experiencing greater benefits for learning. Perceptions of others was a theme across all groups, with students expressing concern about how their iPad use might appear to clinicians, patients and the public.
Conclusions: The experience of iPads in clinical learning was mediated by motivation. This reflects previous literature in diffusion of innovation and professional behaviour change. Some students perceive that ipads enhance clinical learning. Experiences are mediated by motivation.
Take-home messages: Consider motivation as an important issue when introducing new technologies to support learning.

9C/2
Are individuals more accepting of the internet than mobile phone apps being used in clinical practice?

Nicole Koehler (Deakin University, Assessment and Learning Design / Deakin Learning Futures, Melbourne Burwood Campus, 221 Burwood Highway, Burwood, Vic 3125, Australia
Olga Vujovic (Monash University, Melbourne, Australia)
Christine McMenamin (Monash University, MBBS / Faculty of Medicine, Nursing and Health Sciences, Melbourne, Australia)

Background: The internet and mobile phone applications ("apps") are increasingly being used in clinical practice especially by new medical professionals/students. However, little is known in regards to individual's attitudes towards medical professionals using new technology. The aim of this study was to examine individual's attitudes towards the use of medically related internet sites and apps in clinical practice.
Summary of work: Participants completed an on-line survey which contained questions regarding their own use of mobile phones and the internet, their use of healthcare facilities, and their attitudes towards medical professionals using the internet and apps during consultations.
Summary of results: The survey was completed by 141 individuals who generally had more favourable attitudes towards medical professionals using the internet than apps. All participants owned a mobile phone (82% with application support). Furthermore, all participants had access to the internet at home.
Conclusions: It is possible that attitudes towards the internet were more favourable than that for apps because the internet has been available longer and consequently individuals are more familiar with it.
Take-home messages: Prior to using new technology, especially apps, medical professionals/students should adequately inform patients in regards to their intended use to avoid potential misconceptions.

9C/3
Pharmacology E-Learning Website Versus App: Change In Learning Strategy

Eline Dubois (Leiden University Medical Center, Center for Innovation in Medical Education, postzone V7, PO box 9600, Leiden 2300 RC, Netherlands)
Robert Rissmann (Centre for Human Drug Research, Leiden, Netherlands)

Background: The free Teaching Resource Centre Pharmacology Database (TRC) is available as an E-learning website for the illustration drug action in the pathophysiological context. The website is frequently used by Leiden students throughout the integrated medical curriculum. With the introduction of mobile devices, the TRC app was developed and launched in 2012 for the iPad and iPhone. Objective of the study was to investigate whether the possibility for learning on a mobile device (app) versus the computer (website) changes the learning behaviour.
Summary of work: In order to obtain information about when and how the app or website is used by the Leiden medical students, a voluntary online survey was conducted.
Summary of results: The TRC website is still frequently used; TRC app users indicate to continue to use the website. Analysis of the survey revealed that over a third uses the app once a week whereas only 13% consults the website equally often. During lectures and seminars the app is used by a third of the mobile users while only 8% uses the website.

Conclusions: The group of tablet and smartphone users is growing and on longer term a clear shift is expected from the use of website towards the app.

Take-home messages: The TRC app is easier accessible and used differently - more frequently and in respect to learning situations - compared to the website. The TRC on a mobile device is used as a look-up tool, whereas the website is still used for thorough study.

9C/4
Feedback using mobile phone toward independent study: A qualitative study

Ide Pustaka Setiawan (Faculty of Medicine, Gadjah Mada University, Medical Education, Gedung Radioputro Lt.6, Jalan Farmako Sekip, Perum Duta Mas 1 F, Popongan, Sinduadi, Mlati, Sleman, Yogyakarta 55284, Indonesia)

Background: Feedback is usually delivered face to face, in appropriate manner and appropriate time (Dent & Harden, 2005), from instructor to the students during skills training session. But how does the instructor give feedback when the students conduct independent study? Could the recording facility of students' mobile phone solve this problem?

Summary of work: This was qualitative study. During independent study, we asked students to record their skill using video recording facility within their own mobile phone. The recording file from mobile phone was then burnt to the VCD. We asked peers and instructors to watch the students' performance in VCD as well as to give written feedback which is equipped by structured questions. Survey as to feedback given to students toward both peers (n=49) which is selected randomly and skills lab instructor (n=50) was conducted. After receiving written feedback from both peers and instructors, students who perform in VCD were asked to make written reflection about feedback that is given to them.

Summary of results: The study yielded the following results: 1) feedback on skills includes: communication aspect, physical examination and attitude, 2) feedback on quality of recording includes feedback on: video, recording tools, actor and setting, 3) Students' reflection said that the feedback is useful; 4) There are suggestions to improve the recording result.

Conclusions: 1) Feedback on students' independent study can be delivered by utilizing video recording facility in mobile phone, 2) Students said that the feedback is useful, 3) Technical things should be noted in order to result in better quality of recording.

Take-home messages: Mobile phone is not only used for communication tools, but also for teaching and learning tools.

9C/5
Tablet assisted learning in medical education: benefits and requirements

Matthew Hammerton (University of Southampton, Faculty of Medicine, Southampton, United Kingdom)

Sunhea Choi (University of Southampton, Faculty of Medicine, MP820, AB208 South Academic Block, Southampton General Hospital, Tremona Road, Southampton SO16 6YD, United Kingdom)

Background: In Summer 2012, the University of Southampton conducted a Student Learning Experience (SLE) study investigating medical students' approaches to learning. Results highlighted mobile technologies' role for learning. Most students owned Smartphones, while a significant minority owned Tablets. To understand the potential of Tablets for medical education and identify user support requirements, a follow-up study, exploring students' use of Tablets for one year, commenced in September 2012.

Summary of work: 3 different types of Tablets were given to 6 representatives from the SLE study. The participants were given free reign over how they used their Tablets. In return, reflective diaries of educational and non-educational Tablet use and attendance at monthly focus group meetings were required.

Summary of results: Study data suggested that Tablets had a positive influence on the participants' learning. Tablets did not replace other technology but offered unique and diverse benefits, including timely learning experiences on the ward, portable reference tools and digital notepads. Variability in hardware, software and apps availability between Tablet types significantly impacted participants' learning benefit. This reflected the difference in extent each participant utilised their Tablet for learning.

Conclusions: Tablets offer immediate and portable learning, enabling students to engage in learning activities that have been difficult or not possible before. Facilitation of effective use can help students utilise the unique strengths offered. However, without industry standardisation for Tablet contents/apps independent of device type, it will be challenging for students to benefit fully from the technology.

Take-home messages: With guidance for effective use and content/apps standardisation, Tablets can offer unique benefits for medical education.

9C/6
How do "digital natives" learn pharmacology? A mixed-methods study on the use of learning media by undergraduate medical students

Joanna Gutmann (Technische Universität München, Institute of Pharmacology and Toxicology, Biedersteiner Str. 29, Munich 80802, Germany Felizian Kühbeck (Technische Universität München, Institute of Pharmacology and Toxicology, Munich, Germany)
Pascal Berberat (Technische Universität München Munich, Germany)
Martin F. Fischer (Ludwig-Maximilians-Universität, Munich, Germany)
Stefan Engelhardt (Technische Universität München Munich, Germany)
Antonio Sarikas (Technische Universität München, Institute of Pharmacology and Toxicology, Munich, Germany)

Background: There is a widening gap in media competency between students ("digital natives") and lecturers ("digital immigrants"). In addition, the omnipresence of mobile internet devices has an increasing impact on higher education.

Summary of work: The aim of this study was to analyze the use and acceptance of different learning media types (textbooks, lecture slides, smartphone apps, internet search, e-learning cases, podcasts, e-books, written notes) in undergraduate medical education of pharmacology. A mixed-methods study consisting of surveys, web statistics and focus groups was conducted during a four-week pharmacology course at Technische Universität München. 275 of 372 students (73%) participated in the study.

Summary of results: The most frequently used learning media were lecture slides (27%), smartphone apps (22%) followed by written notes (15%), textbooks (15%), e-learning cases (8%) and internet search (8%). 78% of students owned a mobile internet device (smartphone or tablet-PC). Of these, 36% stated that smartphone apps led to intensified learning, or resulted in a more homogenous learning activity (20%).

Conclusions: This study is the first comprehensive "realtime" analysis of learning media use and acceptance during an undergraduate course of pharmacology. Both quantitative and qualitative data demonstrated a high acceptance and usage ratio of digital learning media, in particular mobile learning apps.

Take-home messages: Mobile learning media such as smartphone apps are well received by students and constitute a suitable new medium for teaching and learning in undergraduate medical training of pharmacology.

9D AMEE Fringe 2
Location: Meeting Hall IV, PCC

9D/1
The Friday afternoon tutorial... a picture is worth of a thousand words!

V Vassiliou (Royal Brompton, Cardiology, Cambridge, United Kingdom)
E Ntatsaki (UCL Medical School, Medical Education, London, United Kingdom)

As tutors of medicine we often discussed how best to optimize teaching and learning. How to engage the students and how to ensure that they remember a bit of every tutorial, lecture or clinical session. But how can difficult topics such as neurology be understood and remembered? And more importantly, how to do this on a Friday afternoon? How to convince all 30 students to come, engage, enjoy and remember? We tried to put ourselves in their shoes… what would we have liked to see? Definitely, not the Krebs Cycle… not on a Friday afternoon and possibly not ever! But pictures? Videos? Maybe!
We based therefore our tutorials on pictures…. But these were not random pictures…. Sylvester Stallone looks masculine, but how many know that he actually has congenital Bell's palsy? And what is Bell's palsy? And how do you distinguish it from stroke? Risk factors for stroke? Compare Obelix and Asterix… who is most at risk? Is diabetes a risk factor? And does the Bond girl Halle Berry have type 1 or type 2 diabetes? And how do you treat diabetes? And could stroke give you Parkinson Disease? Remember Michael J.Fox? Mohammed Ali? Do they have Parkinson Disease? Or not? And having discussed a variety of pathology corresponding to the theme of the week what best way to end the day with a related episode from House MD, or Scrubbs or Gray's Anatomy? With complementary popcorn? But pausing and discussing the pathology?
We enjoyed running these sessions. Feedback suggests that the students enjoyed it too and learned… even on a Friday afternoon! We would welcome the opportunity to give you a snapshot of how we did it!

9D/2
Metaphors and artefacts in medical education - using creativity as a paradigm for reflection

Eleana Ntatsaki (UCL, ACME, Holborn Union Building, Archway Campus, Highgate Hill, London N19 5LW, United Kingdom))
V Vassiliou (Royal Brompton Hospital, Cardiology, London, United Kingdom)
Linda Jones (University of Bedfordshire, Education, Bedford, United Kingdom)

The notion of "reflection" in deeply embedded within the current medical education vocabulary having been initially introduced by Dewey, further expanded by Schön and established as a key component of Kolb's cycle of experiential learning in the 70s. Similarly the use of metaphors in humanities (arts, music, and literature) is certainly not an innovation. However, combining those two elements as part of a creative reflective process when developing as a learner or as a medical educator, may prove innovative and may certainly produce some interesting and potentially colourful results.
As part of my professional development as a medical educator, I explored the concept of informal learning and the use of humanities in medical education. I chose to use an artefact as a metaphor for my understanding of informal learning in the form of a created tangible object and utilise different levels and layers of metaphors to capture my own reflections and learning through this process.
The artefact itself is a composition with coloured coffee capsules, pieces of string and a wooden round base. Although interpretation of art (or artefacts) lies within the eyes of the individual, the original intention and reason for its creation lies within the mind and heart of its creator. This artefact is presented with the aid of pictures that illustrate the process of creating it and is accompanied by a personal narrative analysing, decomposing and re-illuminating my perception of the artefact from two different metaphor angles. There may be many more ways to interpret this artefact, and also many more stories and connections to be made and reflections to be triggered. Feel free to come to AMEE Fringe to explore them further…

9D/3
Choose Your Own Medical Adventure

Jamie Newman (Mayo, Hospital, Medicine, 200 1st St SW, Rochester 55902, United States)
Andy Herber (Mayo, Rochester, United States)

There are many ways to make a continuing medical education (CME) course more interesting, though sadly they are not often used. Some courses use patient-based scenarios as a starting point for academic discussion. Stem questions and Audience Response Systems can enhance audience interactivity during CME events. The authors have taken this one step further by using video clips for both the Stem and Answer, developed for a CME event for Nurse Practitioner/Physician Assistant Hospitalists. By allowing the audience to vote, the attendees can actually see the outcome of their choice. But what happens when the audience chooses the incorrect answer? What horrible events and unexpected outcomes will develop? Only the Fringe knows for sure.

9D/4
Staff? Faculty? No, Staffulty!

Heather Haseley (Northwestern University Feinberg School of Medicine, Center for Education in Medicine, 303 E. Chicago Avenue, Ward Building, Chicago, IL 60611, United States

Paul Pribaz (Northwestern University Feinberg School of Medicine, Center for Education in Medicine, Chicago, United States)

Faculty are the subject matter experts. They practice clinically, teach and do research. Staff deal with all the administrative nonsense, like finances, human resources, technology, facilities, legal, strategic planning, blah, blah, blah… But what happens when this traditional model no longer fits? What happens when you are short on budget and need an administratively savvy technology expert, content expert, researcher, and teacher all rolled into one? Enter the "staffulty": the individual who lives in the gray area between staff and faculty, who is equally as comfortable with curriculum development as with a spreadsheet, and who has multiple scholarly achievements but still is responsible for the annual budget projections. Staffulty are those indispensible administrators who not only understand medical education but also engage directly with it. Using quiz show questions and facilitated ranting, we aim to encourage a discussion surrounding the multitude of questions surrounding this elusive species, such as: How does one become an expert staffulty spotter? What special powers do staffulty possess? Is the presence of staffulty a good thing for medical education? How do we train, promote, and reward staffulty?

9D/5
Reflection on using artistic creativity in medical teaching and learning

Nataiie Beausoleil (Memorial University, Division of Community Health & Humanities, Faculty of Medicine, Health Sciences Centre, Memorial University, St. John's, NL A1B3V6, Canada)

In this presentation I will reflect on my journey as a social scientist and artist working in a medical school and my attempts to integrate artistic creativity and experiential learning in the curriculum. I will discuss the potential for creativity and the use of artistic skills in the new medical curriculum being developed in my institution, the medical school in Newfoundland and Labrador, a Canadian province rich in artistic tradition and creativity. I will explore avenues for enhancing creativity in teaching and opening learning to students' artistic creativity. Through this examination of artistic creativity in teaching and learning I aim to expand knowledge on a range of dimensions of health professionals' identity and links with the broader community. My project also contributes to current discussions of learning/teaching medicine as practices relevant to both art and science. Finally, I ponder the possibilities for a changed academia given my personal experience of a profound disjuncture between my life as an academic and my life as an artist.

9D/6
Narrative and film

George Zaharias (Victorian Metropolitan Alliance General Practice Training, Educational Enhancement, 15 Cato St, Hawthorn 3122, Australia)

Much has been written about "narrative" and the importance of "the patient's story" which invariably provides valuable insights for the clinician and assists them in better managing the patient. It is not difficult to convince experienced clinicians of the value of narrative medicine. With medical students and vocational trainees however, who are more focused on amassing facts and making a diagnosis, it is more difficult to teach the value of narrative let alone its practice.
Film is a powerful medium whose value in medical education is possibly not widely recognized. Partly because of this but also because in medical education there is scepticism about its benefits, film isn't often used and it is generally left to those with a "bent for the arts".
This presentation will engage participants in a brief discussion of a clinical scenario and will then demonstrate through the use of film: (1) the relevance and importance of narrative in clinical practice; (2) the usefulness and the power of film in medical education; (3) the simplicity of using film in medical education.

9E PhD Reports 3
Location: Meeting Hall V, PCC

9E/1
The influence of vertically integrated curricula on readiness for clinical practice

Marjo Wijnen-Meijer (University Medical Center Utrecht, Center for Research and Development of Education, HB 4.05, PO Box 85500, Utrecht 2508 GA, Netherlands)

Introduction: The main goal of the thesis was to determine whether a vertically integrated (VI) curriculum enhances the transition to postgraduate training.
Methods: A variety of studies and methods was used to address the research questions. We conducted questionnaire studies among medical trainees, from either a traditional or a VI curriculum, and among supervisors to gather information about their perceptions regarding graduates' readiness for practice. In addition, we conducted design-based research to develop an authentic assessment procedure for the assessment of readiness for clinical practice. Next we used this procedure to evaluate graduates' readiness for practice in Germany and the Netherlands.
Results: The results indicate that graduates who followed VI curricula make their definite choice for a specialization at an earlier stage and need less time and fewer applications to obtain positions for postgraduate training programs. In addition, VI graduates find themselves better prepared for clinical work and postgraduate training [4]. Also the results of a questionnaire study among supervisors of postgraduate training programs show differences in performance between the two groups of medical graduates. Graduates from a VI curriculum appear more capable to work independently, to solve medical problems, to manage unfamiliar medical situations, to prioritize their tasks, to collaborate with other people, to estimate when supervision is needed and to reflect on their activities [5]. Consequently, we designed an authentic assessment procedure for medical near-graduates in the role of beginning residents on a very busy day. Near-graduates from either a VI or a non- VI curriculum participated in this assessment. In this study, we found only few differences in the assessment scores between the two groups. The most important finding is that candidates from a VI curriculum get better scores on the facet that we labeled as 'active professional development' which includes 'reflection' and 'asking for feedback'.
Discussion and Conclusion: The international nature of the studies had strengths and limitations that will be discussed. Further research needs to focus on the actual performance in clinical practice of trainees from different curricula.
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9E/2
Filling a gap in post-graduate communication skills teaching: a faculty development project

Noelle Junod Perron (Geneva University Hospitals, Division of Primary Care Medicine, 4 rue Gabrielle Perret-Gentil, Geneva 1211, Switzerland)

Introduction: How effective is a training program for clinical supervisors on how to teach patient communication skills to residents in clinical practice?
Methods: First, a needs assessment was conducted through several focus groups among clinical supervisors and residents of both inpatient and outpatient settings. Second, a pretest-posttest controlled study was carried out in which clinical supervisors attended a program in teaching communication skills tailored to their needs over a period of 6-9 months in which communication and teaching skills were trained simultaneously. Outcomes measures were the number and type of communication skills identified by clinical supervisors on three videotaped clinical encounters, the number of communication skills discussed in an interactive way and observed use of feedback skills during three objective structured teaching encounters. Finally, skill transfer was explored through semi-structured interviews among 26 trained clinical supervisors 3 to 6 months after training.
Results: The needs assessment was used to design the training program. 48 clinical supervisors participated (28 in the intervention group and 20 in the control group). Training had no impact on clinical supervisors' ability to identify poor or good communication skills used by residents but had positive effects on the number of communication skills taught in an interactive way to residents (effect sizes 1.36-1.77). In addition, trained participants significantly improved their feedback skills during the structured teaching encounters (effect sizes 0.93-4.94) (2). Finally, factors facilitating transfer included work characteristics such as opportunities to practice, involvement in teaching activities, supportive institutional and a positive learning climate. Participants who reported teaching communication skills in practice were generally involved in structured communication skills teaching.

Discussion and Conclusion: A training program on how to teach communication skills is feasible, appreciated and effective in that it changes perceptions and behaviors and helps shift a paradigm change from a teacher centered to a more learner centered approach.

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9E/3
Fostering cognitive presence in higher education through the authentic design, delivery, and evaluation of an online learning resource: A mixed methods study

Douglas Archibald (University of Ottawa, Family Medicine, 43 Bruyere St., Room 369y, Ottawa K1Y 0A6, Canada)

Introduction: The purpose of this mixed methods sequential explanatory study was to explore cognitive presence and the learning experiences of participants using an online learning resource in higher education research methods courses. Through examination of the relationships between three elements in an online CoI the researcher was able to gain further insight into whether higher levels of cognitive presence can be reached in an online environment. Specifically, the researcher explored the effects of the design of the online learning resource, his direct instruction and facilitation of the discussions (teaching presence) and the extent of the development of the interpersonal relationships among users (social presence) on predicting critical thinking among users (cognitive presence). Furthermore, with regard to the examination of the CoI, the researcher wanted to determine the ability of social and teaching presence to predict cognitive presence after controlling for several additional variables (i.e., self-directed learning readiness, prior online learning experience, and prior collaborative learning experience).

Methods: In the first quantitative phase of the study, data were collected from 189 consenting participants in 10 research methods courses in education and health education programs, via three online surveys and course discussion transcripts. Various relational and comparative statistical techniques were used to analyse the survey data, including multiple regression, t-tests, ANOVAs, CHAID, and content analysis. Based on the results of the first phase, the interview protocol was developed and participants were selected for the interviews. In the second, qualitative phase of the study, 25 participants from the various research method courses were selected to explore the results from the quantitative phase in more detail.

Results: The quantitative results indicated that both social and teaching presence had a strong positive relationship with cognitive presence and that learners generally perceived to have a positive learning experience using the online resource. The qualitative findings helped elaborate the significant quantitative results and were organised into the following themes: making connections, multiple perspectives, resource design, being a self-directed learner, learning strategies, learning preferences, and barriers to cognitive presence.

Discussion and Conclusion: This study provided an enhanced understanding of cognitive presence from adults engaged in online learning, which may affect educational practice.

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9E/4
Learning to diagnose using patient video cases in paediatrics. Perceptive and cognitive processes

Thomas Balslev (Aarhus University, Centre of Medical Education, Brendstrupgaardsvej 102, Aarhus N 8200, Denmark)

Introduction: Our group wished to clarify how adding a patient video case (PVC) might enhance the cognitive processes and sharing of cognition, and to identify efficient interactive uses of PVCs. We also aimed to illuminate the perceptive and cognitive processes of clinicians with varying duration of experience. In a final study visual guidance in PVCs was explored.

Methods: In the first two studies, a randomized, controlled before-and-after design was used (1,2). One group analysed a videocase, the other analysed a text case. The verbal interaction was audio recorded and the clauses analysed. A stimulated recall procedure was used to obtain an in-depth analysis (2). A stepwise, interactive teaching approach with PVCs was applied to identify methods useful to help non-experts learn from experts (3). Next, we examined visual expertise in detail (4). We used eye tracking to examine the perceptive processes and a concomitant think aloud procedure to examine the cognitive processes during analysis of PVCs. In the final, randomized study (5) we examined the

effect of two types of visual modelling in teaching videos: "circle" or "spotlight".

Results: We identified improved learning processes (1) and improved sharing of knowledge (2) among participants analysing the video case compared to the text case. Participation in small group discussions and subsequent listening to an expert's think-aloud were particularly effective approaches (3). Experienced clinicians used more time looking at relevant areas, and less time searching other areas (4). Learners taught by "spotlight" teaching videos were faster and more focused in their visual search when subsequently analysing test videos (5).

Discussion and Conclusion: This series of studies widens the understanding of the perceptive and cognitive processes in clinicians working with authentic PVCs in paediatric neurology. In some of the studies, only a limited number of PVCs were used.

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9F Short Communications: Patients as Partners

Location: Chamber Hall, PCC

9F/1

Actively engaging adolescents with chronic diseases in medical education: what do they think their contribution might be?

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Background: The unique expertise of patients with chronic diseases is increasingly recognized. While a number of patient partners (also referred as patient educators) programs have been developed in the adult population, little is known about how adolescents with chronic conditions could actively be engaged in medical education.
Summary of work: The main aim of the study was to explore and develop a detailed understanding of teens' perspective about their potential contributions as patient partners. Using a qualitative approach, seventeen individual semi-structured interviews were conducted with adolescents living with chronic arthritis. A thematic analysis of the transcripts was realized using a constant comparative approach.
Summary of results: Motivational factors for teens' involvement, main barriers for engagement and preferred patient partners program's structural components were identified. Beyond teaching components of physical exam, adolescents brought to light other competencies, such as teaching of communication skills, they valued as important elements to incorporate in the educational program.
Conclusions: Our work demonstrates that adolescents express a strong desire to be engaged as patient partners and manifest a clear understanding of what their potential and unique contributions to the teaching might be.
Take-home messages: This study represents the first step toward the development of a patient-centered educational program actively and effectively involving teens as teachers in medical education.

9F/2

The role of patients as assessors in medical examinations

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Background: Shifts in relationships between doctors, learners and patients have resulted in more active patient roles in medical education, with the evolution of 'patient assessors' (PA's) raising questions as to the validity and reproducibility of patient assessments of doctors. Here, we report on an observational study of untrained 'real patient' ('RPs') assessments of final year medical students' objective structured clinical examinations (OSCE's).
Summary of work: Data was collected prospectively. Assessment of candidates' behaviour was with an ordinal scale describing highly professional candidates with good communication skills through to poorly performing candidates.
Summary of results: 1567 sets of RP data were compared with 288 sets of simulated patient ('SP') data demonstrating average marks of: (mean ± SD) 5.7 ± 1.13 for RP's and 4.8 ± 1.08 for SPs with no statistically significant differences between 'trained' and 'untrained' assessments. Analysis of an individual OSCE station demonstrated a significant effect of group, with RP and SP mean ranks of 214.8 and 153.4 respectively (p < 0.0001, Mann Whitney U-test). If PA assessments were included, 60 candidates (3.23%) would have had their result changed from a fail to a pass and 12(0.65%) would have received a pass not a fail on these stations.
Conclusions: PAs can 'triangulate' examiner assessments and assess specific areas (e.g non-technical skills). Whilst a credible source of feedback, patients may not always assess objectively.
Take-home messages: This demonstrates that PAs and clinical assessors generally concur on behaviour assessments. It also appears that inclusion of PA marks are unlikely to disadvantage candidates. We believe a formal framework is required to support this practice.

9F/3

Patient versus Expert Ratings of Medical Student Performance in a Structured Clinical Examination

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Background: The General Medical Council (UK) has called for more patient and public involvement in the assessment of medical students and practitioners. In the US, standardised patients perform summative assessments of communication skills for the clinical component of the US medical licensing examination. This project aimed to evaluate the reliability of patient ratings of clinical performance in the Integrated

Structured Clinical Examination (ISCE) of the Peninsula College of Medicine and Dentistry (PCMD). This summative assessment requires students to perform a complex combination of skills, including history-taking, communication and examination, in each of its six stations.

Summary of work: Ethics approval was granted by the PCMD Ethics Committee. The communication skills and overall performance of 190 students were rated by patients and clinicians in each station of the 2012 ISCE. The inter-rater reliability of patient-clinician ratings was measured using the Intraclass correlation coefficient (ICC).

Summary of results: Good inter-rater reliability was found in most stations, particularly those focusing on communication, including 'Communication in Difficult Circumstances' (ICC=.653, p<.001). Some stations showed poor inter-rater reliability, such as 'Endocrine' (ICC=.152, p=.148).

Conclusions: Reliability of patient assessments during clinical skills examinations is context dependent. Further work is needed to ascertain which particular domains are reliably assessed by patients. Qualitative analysis of patient feedback and investigations of patient perceptions of the role of assessment are needed to refine patient assessment methods.

Take-home messages: Patient ratings of communication skills are a reliable measure of undergraduate clinical performance in certain contexts. More work is needed to investigate the role of patients in the assessment of undergraduate clinical performance.

9F/4

An Innovative Community Patient Volunteer Program For Teaching Clinical Skills At The Regional Campus Of The University Of Queensland School Of Medicine

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Background: The newly established Ipswich regional campus of the University of Queensland School of Medicine experienced significant difficulty in accessing hospital patients for clinical skills teaching during its initial two years of operation. The innovative Community Patient Volunteer (CPV) program was developed to address this problem. Patient volunteers were recruited from the local community and rostered to attend tutorials on campus. Students practised history taking and physical examination and developed clinical reasoning skills with the assistance of volunteers, under the guidance of their clinician tutor. An evaluation of this program was undertaken.

Summary of work: Questionnaires were disseminated to students, volunteers and tutors from 2010 and 2011. The surveys were designed to explore students' views of the program compared with hospital-based bedside

teaching, volunteers' reflections on their contribution to students' learning, and tutors' perceptions of clinical relevance of CPV.

Summary of results: Students and volunteers reported benefits from participation in the CPV program. Ipswich students' results in Year 2 OSCE in 2010 and 2011 were equal to or better than the Brisbane cohort in the history taking and communication skills stations. Results were the same throughout both cohorts in the physical examination, clinical reasoning and procedural skills stations.

Conclusions: Student learning was not disadvantaged by the use of the CPV program and may have been enhanced. Volunteers reported personal gains from participation.

Take-home messages: The utilization of patients in non-traditional roles in medical education can be mutually beneficial for both students and patient volunteers.

9G Short Communications: Educational Environment
Location: Conference Hall, PCC

9G/1
Student centered curricular elements are associated with healthier educational environment and lower depressive symptoms in medical students

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Background: Any curriculum change is essentially an environmental change; therefore there is a need to assess the impact of any change in the curriculum on the students' Educational Environment (EE) and psychological well-being. The objectives of the study were to (i) compare the EE perception of medical students studying in a system based curriculum versus those studying in a traditional curriculum (ii) compare the rate of depressive symptoms among the same students studying in both types of curricula.
Summary of work: A cross sectional survey was conducted in a Saudi Medical School from 2007-2011, which transitioned from traditional to system-based curriculum. A bilingual version of the Dundee Ready Educational Environment Measure (DREEM) inventory was used for measuring the EE; the Beck Depression Inventory (BDI II) for screening for depressive symptoms; and a demographic questionnaire.
Summary of results: The mean total DREEM score of the EE in the system based curriculum was significantly higher than the traditional curriculum (P<0.01). The effect size was 1.07. The mean total score on the BDI- II inventory for depressive symptoms was 18 among the traditional curriculum students and 15.6 for the system based counterparts and the difference was statistically significant (P=0.004). The effect size was -0.26.
Conclusions: The perception of the EE of the students studying in the system based curriculum was significantly healthier than the traditional curriculum students. A higher rate of depressive symptoms was found among the traditional curriculum students than the system based counterparts and the difference was statistically significant (P=0.004).
Take-home messages: The current study adds to the advantages of the system based curriculum in terms of healthier EE and emotional well-being.

9G/2
Validation of the instrument CLES (Clinical Learning Environment and Supervision) for medical students in primary care

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Background: The aim of the study was to validate the instrument CLES for medical students in primary care. In a BEME review, the instrument CLES was recommended for evaluation of the clinical learning environment for nursing students and CLES has been validated for evaluation of the clinical learning environment of nursing students at PHCC.
Summary of work: A survey with CLES with 25 items was sent electronically to medical students at Karolinska Institutet. The response rate was 394 out of 1256 medical students. The data was complete with no missing values. Exploratory factor analysis (EFA) based on principal component methods followed by oblique rotation was performed to confirm adequate number of factors in our data.
Summary of results: The items clearly loading to factors indicate that the instrument CLES is validated for use as an evaluation instrument of medical students learning environment in PHCC. The cumulative variance explanation was 0.65, and overall Cronbach´s Alpha was 0,95. One item, "The care centre had a clearly defined vision and goals of patient care", moved from the expected factor 4, "Premises of patient care at the primary health care centre", to the unexpected to factor 3 " Leadership style of the leader for the primary health care centre". It may be attributable to that the target group of the item in the original CLES instrument was nursing students who have nursing care as their main subject.
Conclusions: CLES may be regarded as validated for use as an evaluation instrument of medical students' learning environment at PHCC.
Take-home messages: CLES is a promising instrument also for medical students.

9G/3
Medical students and perceptions of their clinical learning environment

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Susan J Hawken (University of Auckland, Psychological Medicine, Auckland, New Zealand)

Background: Medical students encounter challenging and rewarding learning experiences when early in their clinical training.

Summary of work: To explore whether or not different groups have different perceptions of their learning environment The Dundee Ready Education Environment Measure (DREEM) was administered to 4th and 5th year medical students studying at a New Zealand University. The students were asked to reflect on their recent experience whilst on clinical rotation (medicine, obstetrics and genecology, paediatrics, psychiatry, or surgery).

Summary of results: Preliminary investigations found no difference between rotations and years (4 and 5) in terms of DREEM measures. However, an ethnicity main effect and ethnicity-gender interaction effect were found to be significant. For the main effect, differences were noted for perception of learning and perception of course organisers. For the interaction effect differences were noted for perception of learning and perception of course organisers. Perception of atmosphere was also close to significance ($p = .05$). Age effects were also noted for perception of learning, academic self-perception and perceptions of atmosphere. Analyses of the means and line graphs revealed that pacific island students tended to responded lower than other groups and in particular pacific island male students in the areas of significance. In addition, older students tended to score lower on the areas of significance.

Conclusions: There is evidence to suggest that medical students within different subgroups respond differently to the clinical learning environment. This suggests that the lower scoring students may require more assistance when clinically placed.

Take-home messages: The clinical environment create a diverse learning environment that may impact on students differently and some of the under lying aspects of difference may be identifiable.

9G/4

Culture matters in successful curriculum change: the influence of national and organisational culture tested with multilevel structural equation modeling

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Background: National culture showed to play a role in curriculum change in medical schools, and organisational culture has been similarly implicated in change processes in business organisations. Putting these findings together raises the question of whether and how these two cultural influences may be interconnected and play out in change processes in medical schools. Since this question has remained largely unexplored in the literature, this international comparative study investigated the impact of national and organisational culture on successful curriculum change.

Summary of work: Cross-sectional survey data was collected in medical schools changing (or preparing change of) their curriculum, yielding 991 participants of 131 medical schools in 56 countries. A literature-based conceptual model was developed and tested using multilevel structural equation modeling. National and organisational culture were operationalised using Hofstede's dimensions of culture and Quinn & Spreitzer's competing values framework, respectively. Successful curriculum change was measured using a questionnaire developed to determine Medical schools' Organisational Readiness for curriculum Change (MORC) and measures of change-related behaviour.

Summary of results: The initial poor fit of the model was improved by two modifications. In sum, characteristics of national culture affected organisational culture, and direct effects of national and organisational culture characteristics on successful curriculum change were found.

Conclusions: Large differences in readiness for change between and within medical schools were explained by national and organisational culture, respectively, suggesting an impact of both types of culture on successful curriculum change.

Take-home messages: Those contemplating curriculum reform should consider the potential impact of national and organisational culture.

9G/5

Let me belong – student perceptions of ethnic segregation at medical school

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Background: There is evidence that medical students demonstrate ethnic homophily (segregation) in their social networks. The causes and effects of this phenomenon are not fully understood.

Summary of work: 32 one-to-one interviews with students from various ethnic backgrounds at different stages of undergraduate medical training were conducted at one London based UK medical school. They explored thoughts and perceptions about ethnicity within the medical school and the role of clubs and societies in interethnic friendship. Interviews were inductively and deductively thematically analysed using a framework based on Communities of Practice and intergroup contact theories.

Summary of results: Emerging themes included: recognised ethnic homophily despite the positive educational effects of diversity; the role of clubs and societies in fostering belonging for students from various ethnic groups and in developing a "medic identity", but also in increasing anxiety at interethnic contact; the positive impact of "enforced" mixing by the medical school in reducing ethnic segregation and widening viewpoints. Feelings of belonging, comfort, and shared common ground were key in developing and maintaining students' communities of practice such as their friendship groups, clubs and societies. This could result in unintended ethnic segregation - itself broken down by "enforced" mixing.

Conclusions: There are a variety of complex reasons for homophily within social networks at medical school but medical schools can have a positive impact, increasing integration through random mixing of teaching groups and clinical firms.

Take-home messages: Medical schools must be aware of issues around segregation and provide an optimal environment to encourage integration.

9H Short Communications: Reflection and Critical Thinking

Location: Club H

9H/1
Does narrative-based self-reflection, using video recordings of practice, aid professional development? Beyond 'Teacher Coaching'

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Background: Self-reflection is believed to lie at the centre of teachers' professional development, offering a crucial process in enabling new insights and perspectives about practice. Research has emphasised the need to develop a reflective framework for teachers to consider their praxis. To support this notion, our institutions have put in place a Teacher Coaching process, which involves observing teaching through using a real-time narrative methodology. This project aims to build on this, by coupling video technology with narrative self-reflections, so teachers can consider their own practice in real-time from a third person standpoint.
Summary of work: This cross-institutional research recruited previously coached clinicians, pre-clinical lecturers and business school lecturers: three from each group. They used the narrative format to self-reflect via video playback of their teaching. Reflective accounts were thematically analysed and teachers were interviewed, to explore opinions about this reflective process.
Summary of results: Thus far, most teachers have supported the Teacher Coaching narrative style and recommended its use, reporting that the experience has improved their teaching. Self-reflection was focused primarily on students' emotional and physical reactions, technical issues and future improvements.
Conclusions: By studying different groups of teachers and environments, we examined not only the process, but how broadly it could be applied. We believe this reproducible process has potential implications in aiding teachers' professional development.
Take-home messages: The use of technology in facilitating student learning is in the limelight, but we must appreciate that it can also be used to support and train teachers just as effectively.

9H/2
Personal reflection cannot be measured – yet? Psychometric evaluation of the Groningen Reflection Ability Scale

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Background: The use of reflection as a learning approach is increasing in medical education. Personal reflection is used to describe students' ability to critically reflect on own learning and functioning. The Groningen Reflection Ability Scale (GRAS) was developed in The Netherlands in 2007 and is now referred to as an instrument to measure personal reflection. We tested the GRAS scale in a Danish setting and correlated the personal reflection score with other student characteristics.
Summary of work: We translated and adapted GRAS for use in a Danish context (GRAS-DK). GRAS-DK was pilot tested before the primary data collection and the subsequent retest. We tested the psychometric properties of GRAS-DK in terms of test-retest reliability and floor/ceiling effects. Finally, we performed a confirmatory factor analysis to test GRAS-DK against the original factor model.
Summary of results: The GRAS-DK questionnaire was answered by 361 (69%) of 523 invited students. The mean GRAS-DK score was 88 (SD= 11.42).There was a statistically significant difference in GRAS-DK score of 2.58 between male and female students (89.27 vs. 86.70, CI:[0.379; 4.777]). There was no correlation between age, study progression, or extracurricular activities and the GRAS-DK score. The confirmatory factor analysis did not replicate the original three factor model of GRAS and further exploratory factor analysis did not propose an alternative factor model.
Conclusions: GRAS in its current form could not be confirmed as a one-dimensional measure of personal reflection. Is personal reflection measurable?
Take-home messages: Personal reflection might not be measured easily and we need thorough validation to be able to rely on questionnaire measurements.

9H/3
Real Time Real Patient: A training model for bridging patient-centered care and reflective practice

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Background: Reflection is widely recognized as critical for developing mindful practitioners who engage in lifelong learning (Irby, Cooke, 2010). Effective teaching approaches for integrating reflection with development of clinical practice are not as clear, and little is known about whether trainees view such activities as useful or confidence-building.
Summary of work: As one of five Centers of Excellence in Primary Care Education funded to develop new models for training health care professionals, we are piloting a program that provides residents with 4 three-month outpatient blocks and co-learning sessions with nurse practitioner students. Within this overall program, we developed a longitudinal curriculum - "Real Time Real Patient" - that integrates reflection on workplace actions while recognizing the importance of patients as mentors. Resident and nurse practitioner trainees are given portable video cameras to record new and follow up patient encounters (proper consent protocols followed). Trainees then complete summary and reflection forms on the encounters and present their video clips and reflections in a peer and faculty interprofessional group setting.
Summary of results: Trainees complete a short evaluation after each session. In Year 1, sessions received an average rating of 4.55 out of 5 (1-5; 5=high) for usefulness and average rating of 4.36 out of 5 for increased confidence. Year 2 sessions have thus far received an average rating of 4.66 for usefulness and 4.62 for increased confidence.
Conclusions: Curricula can actively integrate reflective practice models in ways that effectively tie into development of clinical skills and help set the stage for producing trainees as leaders in patient-centered care.

9H/4
Medical training and the "risk epidemic" in preventative medicine

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Background: In Sweden and other Western societies, preventive medicine based on risk-factor investigation of individuals and population screening, is given increasing priority by doctors and politicians. But has a medically induced "risk epidemic" now replaced earlier infectious and cardiovascular epidemics? More and more people are labelled "at-risk", even in countries with the highest life expectancy in the world. The Hippocratic Oath for physicians includes the promise "to abstain from doing harm", but any medical intervention can be harmful. Investigation of healthy people, as part of preventive medicine, is no exception.
Summary of work: I discuss these issues in a lecture on Family Medicine to Term 8 medical students at Umeå University, aiming to promote critical thinking around a problem I regard as crucial for the future. I also emphasize people/patient-empowering approaches in research and practice, introducing concepts such as "salutogenesis" and "personal health resources".
Summary of results: Like most medical students approaching graduation, my students appreciate "hard facts" and "how-to-do-knowledge". This lecture has caused some hostility among students as well as the teaching-staff, for rocking the students' earlier learning in a critical period of their training, but I have also been awarded a pedagogical prize from the students – for elucidating the complexity in health care-work.
Conclusions: The negative effects of preventive measures, risk-focusing and medicalisation of everyday problems are difficult to discuss professionally, but such a discussion is also longed for by medical students.
Take-home messages: Critical thinking about the "risk epidemic" in medicine, and a discussion about empowering and sustainable medicine, should be introduced into medical training.

9H/5
Using concept maps and mind maps to enhance reflection on academic and medical professionalism in preclinical students

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Background: The evidence supporting the fact that professionalism has to be explicitly taught, learnt and assessed starting from the very beginning of medical education is currently very strong. The main role of preclinical phase of teaching and learning professionalism is to develop cognitive foundations of professionalism and to initiate the process of self-reflection for further experiential and situated learning during clinical years.
Summary of work: Concept maps and mind maps are diagrams used to visually present ideas, tasks or complex projects. While concept maps are more structured, mind maps are considered to be more flexible and personal, hence more useful for reflecting on personal and professional attitudes. Both concept and mind maps can serve as instruments to promote reflection on students' own, individual models of professionalism, to compare it with the team members' views and to finally agree on the most fundamental and universal professional values, simultaneously respecting the diversity of culturally conditioned opinions and attitudes. Concept maps can be also used as a tool to enhance the reflection on relationships between the academic and medical professionalism and to increase

the awareness of complexities of borderline between students' and doctors' private and professional life.

Summary of results: We have successfully implemented concept- and mind-mapping for the preclinical Introduction to Academic and Medical Professionalism courses for Polish and international students of the Medical University of Lodz.

Conclusions: Upon our experience and the evaluation of students' opinions we find concept and mind maps to be effective tools enhancing students' reflection on professional values.

9H/6

Reflection in the Lineproject for pharmacy students at the Vrije Universiteit Brussel (VUB)

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Background: During the first year of the bachelor pharmacy students start with the course 'Line Project I'. The next three years of the bachelor program they acquire and expand their competences. Reflection, as self regulation or the possibility to improve the own action, is important in this learning process.

Summary of work: Teaching goals of these Lineprojects are: (i) offer students a first impression of the profession of a pharmacist; (ii) promote teamwork, (iii) enhance the communication level of students; (iv) increase interdisciplinarity and lifelong learning. During these Lineprojects students receive an impression of the evolution of their competences. By using reflection students learn: (i) how to discuss personal aspects, (ii) how to justify these personal actions, and (iii) how to relate these actions to their future profession. Because not every student will reflect automatically, we help them to reflect during these Lineprojects.

Summary of results: Students have to fill in reflection questionnaires (self-assessment) and reflect about their individual competence acquisition during follow-up interviews. During this follow-up interview students have to reflect about their individual competence acquisition with the game leader. This educational innovation helps students to reflect more and to correct their mistakes.

Conclusions: By doing research we concluded that students show a greater sense of responsibility and involvement in their own learning process. A reason is that this teaching method is more based on a self-learning approach.

Take-home messages: It is estimated that they will further control their evolution as reflective thinkers, including the awareness of the importance of life-long learning.

9I Short Communications: Problem Based Learning 2

Location: Club A

9I/1

Further emerging benefits of PBL: insights from theoretical and functional analyses

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Background: Over five decades, Problem-based learning (PBL) has compared favourably with traditional curricula, in research largely emanating from the First World. We explored its implementation, and its own inherent benefits, in a developing country.
Summary of work: Bernstein's sociological concepts of classification and framing and of knowledge structures were used in a mixed-method interpretive study to analyse a South African medical school's PBL curriculum. At the same time, a mixed-method study was made of aspects of collaborative small-group learning as described by Slavin.
Summary of results: The curriculum studied was in fact found to be closer to a traditional teacher-centered, lecture-based programme. Nevertheless, collaborative learning served to stimulate transformation of attitudes and relationships within the small groups.
Conclusions: We argue that the knowledge structure of medicine is closer to that of the social than the pure sciences, and that, while the typical pedagogical form of PBL may not be predominant in this setting, it still functions in an integrative and transformative way amongst a diverse student body. These observations relate to the power relations within the faculty and between faculty and students, they have implications for the way medical knowledge may optimally be transmitted, and they serve as yet another argument for a learning methodology that integrates both disparate areas of knowledge and dissimilar student backgrounds.
Take-home messages: This twofold integration may be one of the most effective ways of combining teacher and learner characteristics, learning contexts and processes, and course content, to achieve learning outcomes appropriate to medical practice in the 21st century.

9I/2

Emotional intelligence, personality and psychological defense as predictors of PBL preferences

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Background: PBL is based on interactive skills that subsequently are supposed to translate into the patient-doctor relationship.

Summary of work: Second year medical students at the NTNU completed several questionnaires. The aim was to explore attitudes towards PBL in relation to emotional intelligence, personality traits and psychodynamic defense mechanisms.
Summary of results: The preliminary data analysis indicates that favourable attitudes towards PBL are positively associated with emotional intelligence, extrovert personality traits and mature levels of emotional regulation.
Conclusions: Students who like PBL also tend to have an empathic profile suitable for patient interaction.
Take-home messages: PBL facilitators should aim for the development of group dynamics as this may improve interpersonal skills that also are relevant for future work with patients and other health personnel.

9I/3

A Comparison of Facilitator and Second Year Medical Student Attitudes and Perceptions of a Virtual Patient Environment and Student Case Approaches, Development of Learning Issues and Development

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Background: We converted our problem based learning (PBL) course for preclinical medical students from paper-based content to a virtual patient (VP) environment (Web-SP). This has been extremely beneficial as the use of VPs controlled student case readers from disclosing unrequested information. With paper-based content, some readers would divulge whole sections of clinical history without inquiry for specific information by the discussion group and, dependent upon the facilitator, some of our PBL group dynamics evolved into document-dominated sessions.
Summary of work: 175 medical students, divided into 17 discussion groups, and their faculty facilitators, consisting of basic science and active and retired clinical faculty, completed a questionnaire to assess attitudes and perceptions of the VP platform for PBL at the conclusion of their first case and at the end of the course. The group data were organized into three facilitator categories (active MD, retired MD, or PhD) for comparison. Individual and aggregate group VP interactions were compared using the total number of inquiries by each group for each of 3 case sessions and their respective learning issues and differential diagnoses.
Summary of results: Switching to VPs for case content reinvigorated our PBL course and enriched the opportunity to learn for our students. Significant variance between groups categorized by facilitator background was not observed however individual faculty did affect students' attitudes and approaches to VP cases.

Conclusions: An individual faculty member's attitude and perception of the learning environment will affect small group dynamics.
Take-home messages: Faculty facilitators for PBL-based discussion groups must be cognizant that their attitudes matter in small discussion group settings.

9I/4
A renewed teaching approach to achieve the learning goals of a PBL course

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Background: In 2000 a PBL course was introduced in the final year of the medical school at KU Leuven. Some of the objectives were: stimulating clinical reasoning based on evidence based medicine, team work, multidisciplinary teaching and integration of knowledge achieved during the curriculum. Students were asked to solve clinical problems beforehand in small groups, using reliable scientific resources. During class, an interactive discussion facilitated by the lecturer took place. After 11 years we noticed that these objectives were no longer met: students didn't prepare the lectures in the intended way and they used resources of questionable quality.
Summary of work: A new teaching approach was piloted with 15 (volunteer) lecturers. For 30 lectures students received reliable scientific material on the topic as preparation material, but no clinical vignette. During class, clinical cases were solved in an interactive way. All lectures were observed by a member of the medical education unit, students were surveyed and teachers were interviewed.
Summary of results: 3320 student surveys, 58 observations and 29 interviews with teachers were analyzed. Observers noted an increase in interactivity and discussion between students. Teachers were very enthusiastic considering the new approach enhances flexibility in their teaching and they had guarantees that students used reliable scientific material. Students, however, perceived course interactivity as rather 'teacher dependent' and the reading material as too extensive.
Conclusions: The new approach facilitated the re-attainment of some of the learning goals.
Take-home messages: Re-activating some of the learning goals in a course can be useful after some years of 'routine' work. It can also 're-motivate' teachers.

9I/5
An exploration of the use of figurative language in PBL student explanations

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Background: Figurative language has been studied in relation to concepts of illness and has long been thought useful for teachers in making effective explanations. The circulation is like a central heating system; cancer is like a civil war within the body, for example.
Summary of work: A corpus of 100 hours of PBL discussion among Graduate Entry Medical Students has been studied using corpus analysis to identify usage of figurative language in explanations from over 100 hours' worth of learning discussion.
Summary of results: Figurative language features surprisingly rarely among student discussion and explanations, challenging assumptions about how medical students acquire fluency in the concepts and terminology of medicine.
Conclusions: Explaining new knowledge in terms of an analogy, may not be as helpful as teachers think when students are in the initial stages of learning. There may be parallels with second language acquisition theory which may suggest enhancements to teaching and learning in the initial stages of medical training.
Take-home messages: Teachers and learners may benefit from paying explicit attention to the way they can most effectively gain fluency in medical language, before they are able to attain conceptual fluency.

9I/6
Integration of facilitated online discussion forum with PBL: a model to improve students' learning

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Background: Problem-based learning (PBL) is widely used. Previous research showed often there is little sharing of knowledge between the sessions. One suggested solution could be the use of integrating facilitated online discussion between PBL sessions to give an opportunity for students to share knowledge and increase their learning.
Summary of work: A facilitated online discussion forum was integrated between PBL sessions on a four-week traditional PBL course at Qassim Medical School, Saudi Arabia. Fifteen tutors (5 females and 10 males) and 145 students were included in the study. A mixed methods approach was conducted using questionnaires and interviews to evaluate perceived usefulness (knowledge sharing/ learning) and an objective measure of knowledge sharing and elaboration using a validated tool that evaluated the online discussions.
Summary of results: Students and tutors considered that the intervention improved student's understanding

of PBL in a collaborative environment. Both students and tutors enjoyed the integration of the online discussion forum and look forward to have same experience in the future. The objective measure of knowledge construction in the online discussions showed that knowledge was shared and elaborated, consistent with an active learning process.

Conclusions: An integrated and facilitated online discussion forum between PBL sessions has the exciting potential to improve knowledge construction and learning.

Take-home messages: A facilitated online discussion forum between PBL sessions has the exciting potential to enhance learning on a traditional PBL course.

9J Short Communications: Best Evidence Medical Education (BEME) 2
Location: Club E, PCC

9J/1
Building Capacity for Education Scholarship Among Clinical Educators in the Health Professions: A Best Evidence Medical Education Systematic Review of the Scope and Impact of Interventions

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Background: There is a growing desire for health professions educators to generate high quality scholarship; however, few of them encounter the training to do so. In response, the field is devoting increasing resources to provide its members with these skills for education scholarship. The form and impact of these efforts have not been surveyed, though such a synthesis could be useful for practice. Our objectives were to (i) identify interventions aimed at building capacity for education scholarship of discovery among health professions and (ii) examine the evidence behind these interventions.
Summary of work: A systematic review protocol was prospectively registered with the Best Evidence in Medical Education (BEME) organization. We conducted a comprehensive search of health professions' databases and related grey literature. Systematic methods were applied to studies for inclusion, data extraction, and methodological quality assessment. Studies were included if they reported outcomes for interventions designed to capacity of health professions educators to conduct educational research.
Summary of results: Our query returned 14, 149 results, 241 of which were retained after title and abstract screening, 30 of which met inclusion criteria after full text review. Seven groups of interventions were identified, the most frequent being teaching scholars programs(7) and master or fellowships in medical education(10). The most common measured outcome of interventions were changes in products of productivity (grants, papers, abstracts, and presentations) post-intervention. Most of the included studies were of low/moderate quality.
Conclusions: This review demonstrates that various interventions can have a positive impact on the ability of health professions educators to conduct educational research although better study quality is required in order to determine efficacy.

Take-home messages: Interventions with strongest study designs were teaching scholars programs, and fellowships/masters.

9J/2
The Effectiveness of the Use of Virtual Patients for Medical Students. A BEME Systematic Review in Progress

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Background: Virtual Patients (VP) are computer-based patient simulations used to educate and test medical knowledge and skills. There are numerous arguments for including VP in the medical curricula including the reduced patient contact time medical students experience due to changes in healthcare delivery. Reported disadvantages in the literature include being expensive and resource intensive, difficult to edit and author, limited by technology and poor at evaluating complex cognitive skills.
Summary of work: We conducted a comprehensive search to retrieve all literature relating to the use of virtual patients in undergraduate medical education from 1980 onwards. All retrieved titles were imported into an Access database we designed based on a modified BEME coding sheet. References focusing on assessments were excluded as this will be the topic of a separate BEME review.
Summary of results: In total, 1,890 references were retrieved in the searches. This number dropped to 1,311 references after the removal of duplicates. We included 108 references. These covered a number of themes including VP design and development, applications, teaching pedagogy, student attitudes and evaluation. New VP designs include the incorporation of simulators and haptic devices. An update search and statistical analysis of the results is underway and will be presented.
Conclusions: Initial results demonstrate VP are effective in the education of medical students in various domains including medical knowledge, clinical reasoning, clinical and communication skills, attitudes as well as curricular integration.

Take-home messages: VP should be considered as part of the teaching and learning strategies for medical students.

9J/3
BEME Systematic Review: Impact of an Intercalated BSc on Medical Student Performance & Careers

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Background: IBScs are optional parts of undergraduate (UG) courses in many countries, consisting of extended study, with research. They are expensive and delay workforce entry.
Summary of work: A mixed-method systematic review (meta-analysis [MA] & critical interpretive synthesis [CIS]) of biomedical & educational literature, focusing on the impact of iBScs on UG performance, skills, and career choice, and to explore stakeholders' opinions.
Summary of results: MA- From 5 studies 2 report an improvement in UG performance; 1 reports OR of 3.58 [1.47-8.83]), 1 reports a significant finals scores improvement (1.27 pts [0.52-2.02]). Others were inconclusive. 1 study suggested iBScs lead to the development of deeper learning styles. 2 studies report an increased chance following academic careers [OR 3.6 (2.3-5.8) to 5.94 (3.6-11.5)]. 7 of 8 studies (broader selection criteria) report iBSc students were less likely to pursue GP careers (OR 0 to 0.17 [0.07-0.36]). In the CIS, from 46 articles, 3 themes emerged; the decision to undertake an iBScs; the educational experience (intellectual growth and financial costs); finally, the iBSc ramifications: improved employment prospects and the potential for "better" doctors. This review identifies key educational outcomes and areas of uncertainty as well as contextual data about these courses.
Conclusions: These findings could have implications for a variety of international enrichment programmes.
Take-home messages: IBScs may improve UG performance, increase the likelihood of academic careers, and a reduced likelihood of following a GP career. They help students to develop reflexivity and key skills, critical appraisal and research.

9J/4
Teaching evidence-based medicine to undergraduate medical students: A systematic review and meta-analysis

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Background: Despite the various methods of widespread teaching of evidence-based medicine (EBM) to medical students, the relevant literature has not been appropriately synthesized. Therefore the aim of this study is to do a systematic review to measure the effect of teaching EBM to medical students on EBM knowledge, attitudes, skills and behaviors.
Summary of work: We searched MEDLINE, SCOPUS, Web of science, ERIC, CINAHL, and Current Controlled Trials up to May 2011; we also performed backward and forward reference checking of included and relevant studies. Two reviewers independently extracted data and assessed study quality.
Summary of results: We found 10111 potential studies, of which 27 were included in the review: I. 6 studies examined the effect of integrated methods, of which 5 were low quality; the other one used no validated instrument; II. A strong study found problem-based learning less effective compared to usual teaching; III. 6 studies examined e-learning, of which 5 had high or acceptable quality and linked e-learning to improved knowledge, attitudes and skills; IV. 12 studies evaluated the effect of seminars, workshops and short courses, of which 11 were low quality, and the other one lacked a validated instrument again; V. Two studies with high or moderate quality linked complex interventions to improved knowledge and attitudes; VI. No included study assessed the long-term effects.
Conclusions: Evidence supports the use of e-learning as a complement for usual teaching; however, we have to further examine integrated teaching methods, problem-based learning, and short courses and instructions; in addition, we should focus on long-term assessments using high-quality instruments.
Take-home messages: Using of e-learning as an effective complement of usual teaching. Assessing long-term higher-order mastery of EBM, using high-quality instruments, and further focusing on properly designed methods, using mode of practicing EBM, and student educators should be considered in the future studies.

9J/5
Examining the effectiveness of the methods used to develop research skills in medical education – A systematic review proposal

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Background: Training in research skills and the development of research skills is required to ensure that doctors are competent both as future practitioners and clinical or basic science investigators. There is a substantial literature on how to develop and inculcate research skills in medical students (Laidlaw et al, AMEE guide No. 69, 2012, Medical Teacher 34: 754–771).
Summary of work: This review will look at the effectiveness of the methods and approaches in the field to successfully teach and develop critical thinking and research skills in medical students.
Summary of results: 1. Is there a body of research available on the topic of teaching research skills in undergraduate medical education? 2. What teaching methods have been found to be effective in this field? 3. How has this effectiveness been evaluated? 4. Does the literature show when (and how) critical appraisal is taught? 5. Does the literature have a specific focus on generic skills in critical appraisal and thinking?
Conclusions: Although there is evidence related to the promotion of research skills in medical students there has not been a systematic review and synthesis of the literature to date.
Take-home messages: Research skills and attributes in the wider sense are viewed as important if not essential for producing competent and effective doctors.

9J/6
A Best Evidence in Medical Education (BEME) Systematic Review: The integration of theoretical and clinical knowledge in undergraduate medical education

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Background: The problem of transfer of knowledge from basic science to clinical practice has been a challenge for teachers and medical schools for over a century. Numerous initiatives to facilitate for students to integrate theoretical basic science knowledge with clinical knowledge have been taken – some at course or module level, others at programmatic level. This systematic review aims to explore the best evidence concerning integration of theoretical and clinical knowledge, to guide further initiatives of integration in the construction of professional competence.
Summary of work: After a comprehensive literature search, two reviewers completed title screening, fulltext review and quality assessment of studies in health professions settings. A coding sheet was constructed and piloted on 11 articles. A candidate theory was constructed as a way of making explicit the underlying (latent) conceptions of integration and the manifestation of these in a range of efforts to integrate theoretical and clinical knowledge in undergraduate medical education. Three pairs of reviewers were in the process of coding in the middle of March.
Summary of results: To be reported at the conference.

9K Short Communications: Simulated Patients

Location: Club B, PCC

9K/1
Pre-clinical medical students' integration of communication and procedural skills in a simulated patient consultation

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Background: Performing a consultation involves two sets of skills – psychomotor and clinical communication skills. Although indivisible in practice, these skills are usually taught separately. Scenario-based assessments were done to determine junior medical students' ability, according to assessors and themselves, to integrate communication and procedural skills they've mastered separately since their first year of study.
Summary of work: A mixed method study was done using a population sample of 3rd year medical students (N=251) at Medunsa in 2012, randomly allocated to one of eight 15 minute OSCE stations. Students assessed and reflected on their own performance using a checklist comprising items on procedural steps and communication attributes. The assessors' and self-assessment scores were compared and themes were developed from the qualitative analysis of the reflections.
Summary of results: The mean scores for communication skills (assessors=51%; students=54%) were significantly lower (p=<0.0001) than the scores for procedural skills (assessors=71%; students=69%). Compared to the assessors the students overrated their communication scores significantly (p=0.04). Students (97%) have learned in spite of stress caused by time constraints and being observed. To them the encounters felt real due to the use of simulated patients and they became aware of their shortcomings, especially in communicating with the patient. They expressed a need for similar experiences to further enhance their confidence and communication skills prior to clinical practice in 4th year.
Conclusions: Students reported problems with integrating communication skills with procedural skills but still overrated their competency.
Take-home messages: Integrating communication skills in clinical training at all levels of medical education is essential.

9K/2
Simulated patients' views of professional identity formation in medical students

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Background: Research on medical students' professional identity formation traditionally reflects students' perspectives. As students interact with many teachers during their studies, the perspectives of these instructors should also be canvassed.
Summary of work: Students and their instructors (e.g. simulated patients (SPs), registered nurses, problem-based learning facilitators) from an undergraduate Australian medical programme were interviewed to gain different perspectives on students' professional identity formation. SPs are used extensively in Years 1-3 for communication skills training and physical examinations. SPs encounter students in Years 4 and 5 during OSCEs and when they return for skills training.
Summary of results: SPs (mostly > 45 years) viewed preclinical students as doctors in training, treating them as such. Preclinical students, however, did not generally live up to SPs' expectations in terms of dress and sometimes demeanour. Almost all SPs remarked on students' transformations following patient contact. In their opinion, exposure to patients was a key event in professional identity formation.
Conclusions: SPs, with whom students interact in their early medical studies, can contribute to our understanding of students' socialisation into the medical profession.
Take-home messages: Canvassing the views of the different instructors of medical students with regard to professional identity formation offers a 360 degree perspective of how and when this might happen.

9K/3
Resuscitating the Simulated/Standardised Patient (SP) through Authentication

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Background: Delivering authentic portrayals for Simulated/Standardised Patients (SPs) is chore. The question arises how to train the SPs to deliver the portrayals authentically if the scenarios supplied and the time allocated for preparation do not suffice.
Summary of work: Following a few basic steps in order to create an inner thought process enables the SP to give life to the person behind the patient. It offers the SP something to tap from in order to portray an authentic patient with energy and focus. This process need not take up more time than the reviewing of the scenario does.
Summary of results: The SPs are enabled to deliver authentic portrayals with more energy and focus. Their verbal and non-verbal communication becomes congruent, expressions of feelings become real and they portray characters with more depth. The creation of a

person behind the patient breathes life into the SP's portrayal.

Conclusions: The effect of creating a three dimensional person behind the patient enables the SP to deliver an authentic portrayal which is believable, alive and real. It enables them to react authentically in the moment no matter what they are challenged with. Creating authentic portrayals is possible even given a basic scenario and with short training sessions.

Take-home messages: Creating authentic SP portrayals is chore and is possible within a short span of time even when given the most basic scenarios.

9K/4
Lay person-led pelvic examination training: A Randomised Controlled Trial

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Background: Performing intimate examinations well is challenging due to the required combination of technical, interpersonal, and communication skills. Established training methods are associated with poor training outcomes. Gynaecological Teaching Associates (GTAs) are trained laywomen who work in pairs to teach the pelvic examination, one acting as a patient, and one acting as the instructor. Several low methodological quality studies have evaluated GTA training with promising results.

Summary of work: This is the first high quality randomised control trial (RCT) aligned with CONSORT guidelines evaluating GTA training. 4th year medical students with no prior experience of pelvic examination training were invited to participate within the study. Students were randomly allocated by computer generated random sequence, communicated within sealed opaque envelopes, to intervention (GTA training and routine clinician-led training) or control (routine clinician-led training only). The study is powered to demonstrate a 10% improvement in the primary outcome measure of technical competence. Other outcome measures evaluated included interpersonal and communication skills, student anxiety and

confidence. Investigators responsible for outcome assessment were blinded to participant allocations.

Summary of results: 77 students have agreed to participate within the study. Preliminary results will be available for presentation at the conference.

Conclusions: The results will form the basis for an exciting presentation and lively debate about the role of GTA training in undergraduate education.

Take-home messages: Educational studies should aim to be RCTs paying careful attention to CONSORT guidelines to provide the high quality evidence required to plan the delivery of medical education.

9K/5
Simulated patient methodology across three continents: A qualitative interview-based study

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Background: There has been a growth in simulated patient (SP) literature demonstrating significant variation in the values and practices of SPs. Even basic nomenclature is varied. We sought the views of experts in SP methodology across three continents to gain insight into contemporary SP practices.

Summary of work: Experts in SP methodology were identified through relevant professional associations and peer reviewed publications for individual interviews. Semi-structured telephone interviews were audio-recorded and transcribed. Transcripts were analyzed independently using thematic analysis.

Summary of results: Sixteen transcripts were analyzed from two male and fourteen female interviewees based in Europe (n=6), Australasia (n=4) and North America (n=6). There was little consensus on the key elements of recruitment, role development, training methods, program management, and providing feedback to learners. There was general agreement that there is inadequate training and resources available for SP educators. SP educators reported that expertise is often developed in isolation and experientially, and that there is no clear career path.

Conclusions: Beliefs and practices of SP expert educators vary. Efforts to collaborate across SP programs may encourage a shift to establishing more consistent and enhanced SP practices.

Take-home messages: Although there are similarities in SP methodology internationally, SP practices seem highly contextualised. The internationalization of practices may help to enhance SP practices.

9K/6

English is not my first language---Training English-speaking SPs to develop English communication skills

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Background: Development of English communication skills is indispensable for medical students whose first language is not English. However, despite many years of English study, most students become doctors without having any experience of interviewing an English-speaking patient. One survey shows that 25.4% of hospitals in Japan basically do not accept patients who cannot speak Japanese. Medical interviews practiced through classroom role-plays do not prepare students to perform adequately in real practice.
Summary of work: We trained English-speaking SPs. Twenty-four first year students and 10 fourth-year students from 2 universities in Tokyo participated in the study. Semi-structured questionnaires were administered to measure the effects. The SPs were trained to be available for all universities across Japan.
Summary of results: Students were very nervous about their first English interview with a non-Japanese patient but perceived that they could understand the patient better (67.6%) and make themselves understood better (61.8%) than they had initially thought. Many were motivated to improve their English communication skills (79.4%). Some cultural differences, such as shaking hands, were noted and their appropriateness was discussed. Interviews with SPs were successful in providing most students with a positive experience, enabling them to feel that interviewing patients in English is feasible and that they can improve with further practice.
Conclusions: The SPs gave students authentic experiences of interviewing non-Japanese patients in English, and helped develop confidence in communicating in English.
Take-home messages: English speaking SPs should be involved in medical education to cultivate doctors capable of practicing in the global setting.

9L Short Communications: Interprofessional Education: Postgraduate
Location: Club C, PCC

9L/1
Impact of interprofessional education (IPE) on primary care practice

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Background: IPE workshops for GPs, nurses and pharmacists have run for 3 years, in which participants work in mixed groups to ensure interprofessional interactivity. While participants have previously reported a positive learning experience, there was a need to evaluate the impact on practice, specifically professional relationships and patient benefit.
Summary of work: A questionnaire was developed, piloted and distributed online to the 605 healthcare professionals who had participated in the programme. The areas in the questionnaire addressed attitudes, relationships and patient care linked to IPE. Responses to questions on attitudes and relationships were measured using Likert scales, where 1=strongly disagree, 5=strongly agree.
Summary of results: 375 questionnaires were completed (response rate 62%). 71.6% reported that their participation in IPE had led to patient benefit and that they now adopted a more holistic approach to patient management (median 4 (IQR 4-5)). Respondents reported they had changed how they practised as a result of IPE (median 4 (IQR 4-5)), with the changes consistent across professional groups (Kruskal-Wallis p=0.123). While participants reported that IPE improved collaboration and communication across the team (median 4 (IQR 3-4)), pharmacists and nurses were more likely to report these benefits than GPs (Kruskal-Wallis p=0.013).
Conclusions: This study demonstrates that primary care practitioners believe IPE leads to better collaboration and communication between the professions and improved patient care. In addition, a more holistic approach to patient care is adopted.
Take-home messages: Practitioners perceive interprofessional learning that is actively managed as having a positive impact on practice and patient care.

9L/2
A Home Visit Curriculum to Foster Interprofessional Collaboration and Improve Care Coordination for High-Risk Patients in the SF Veteran's Affairs Center of Excellence in Primary Care Education

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Background: Home visits are an important component of healthcare delivery to high-risk patients, yet most trainees have little experience in home visits.
Summary of work: We developed a home visit curriculum to engage medical and nurse practitioner (NP) trainees in a shared experience through which they identify patient safety issues, learn the importance of care coordination and interprofessional communication, and see the impact of home visits on clinical practice. The curriculum included an introductory home visit session addressing functional assessment skills and home safety evaluations. Resident and NP student partners, along with a supervising medicine or nursing preceptor, visited two patients during a half-day session. Trainee teams developed multidisciplinary care plans. A group debrief session following the home visits provided an opportunity for trainees to discuss care coordination and patient safety issues.
Summary of results: Twenty-one trainees and 9 faculty preceptors participated in the home visit curriculum. Trainees valued the opportunity to conduct visits with interprofessional colleagues(4.8 out of 5) and reported high likelihood of changing clinical practice as a result of the experience (4.6 out of 5). Analysis of trainees' written reflections (n=15) on home visits highlighted three themes: improved insight into patients' functional status, medication errors, and home safety assessment.
Conclusions: Home visits are an excellent opportunity for interprofessional learning and patient-centered care. Our curriculum combined formal training and experiential learning in a way that enhanced trainees' awareness of the need for a coordinated approach to improve patient safety.
Take-home messages: Home visits provide insights into a patient's life and offer valuable opportunities for interprofessional collaboration, reflection and learning.

9L/3
Training For Effective Team-Based Care: A Teamwork Curriculum For Residents And Nurse Practitioner Students in the SF Veteran's Affairs Center of Excellence in Primary Care Education

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(Presenter: Rebecca Shunk, University of California San Francisco/San Francisco VA, Medicine, SFVAMC, 4150 Clement St, San Francisco 94121, United States)

Background: Primary care clinics in the United States are reorganizing to deliver care using interprofessional teams. This interdisciplinary approach demands new provider and staff skills.   Academic centers must create innovative curriculum to educate learners in this new primary care environment.
Summary of work: In 2010 our primary care clinics reorganized into patient aligned care teams (PACTs). Internal medicine residents and nurse practitioner students work in teams along with nursing and clerical staff in PACT. Curriculum was developed to teach foundational skills in patient-centered communication and interprofessional collaboration. This curriculum, supervised by faculty coaches, included didactic and work-based learning activities such as care coordination meetings (huddles), telephone visits, group clinics, and motivational interviewing. Curriculum evaluation includes trainee feedback at every session and in focus groups. Learning outcomes are evaluated through self-assessment surveys, reflective activities, and direct observation of skills during huddles and an interprofessional team observed structured exercise (ITOSCE). Patient outcomes are assessed through surveys.
Summary of results: PACT trainees are very positive about delivering care and find value in working within teams. Self-assessments, reflective activities, and ITOSCE reveal improved confidence and growth in communication skills. Patient satisfaction remains high exceeding mean clinic provider scores.
Conclusions: Systems and curricular changes rarely occur in a coordinated, synchronized fashion. Our program is unique in that the educational curriculum was closely aligned with systems improvement efforts during PACT reorganization. Trainee partners benefited from learning PACT-related skills and applying them in day-to-day patient care.
Take-home messages: Interprofessional trainees can successfully train together to deliver team-based care creating positive experiences for both the learners and patient.

9L/4
Uncovering impediments to interprofessional collaboration

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Background: The expectation that different health professionals will work together with the joint goal of improving health outcomes and the patient experience is commonplace. Delivering on such expectations however requires new forms of practice involving some form of interprofessional collaboration.
Summary of work: We conducted semi-structured interviews with senior doctors and nurses in two hospital-based services to collect data about collaborative working experiences. Aspects of activity theory were used to code and analyse data and consider how the broader context of care provision might affect clinicians' conceptions of collaboration.
Summary of results: Knowledge, experience and hierarchy determine the extent to which professional groups are prepared to collaborate with one other. Expertise and hierarchical position of doctors affected the extent to which nursing collaboration was activated. Doctors tended to look towards a nurse's length of service to judge her/his collaborative value. Specialist nurses, often lacking experience, but with higher qualifications often found themselves in a liminal world with respect to potential collaborators.
Conclusions: Conceptions of 'collaboration' differ. These conceptions manifest in different approaches to aspects of collaborative working: varying degrees of preparedness for reciprocity, acceptance of improvisation, flexibility of practice and ability to work within the discursive practices of others. These prerequisites for interprofessional collaboration are not uniformly apparent across professional groups.
Take-home messages: Health care professions' diverse histories, training and registration processes contribute to different, sometimes conflicting, conceptions of collaboration. Educational institutions need to actively pursue opportunities to mould these conceptions to better contribute to the preparation of collaboration-ready graduates.

9L/5
An ethnography of interprofessionalism in discharge in general internal medicine: implications for continuing interprofessional education

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Simon Kitto (University of Toronto, Continuing Education and Professional Development, Wilson Centre, Faculty of Medicine, Toronto, Canada)

Background: Minimal research has been undertaken to examine the macro-structural factors that shape interprofessional interactions around processes of discharge in general internal medicine. Findings from this research are valuable for informing the development of relevant and effective continuing interprofessional education activities.
Summary of work: This study used an ethnographic methodology to examine health care professionals' perceptions and behaviours of interprofessional interactions in discharge within the dynamic organizational context of a general internal medicine unit. Ethnography involves a combination of observation, interview and documentary analysis methods. A directed content analysis approach informed by sociology of professions and negotiated order theories is being used to analyze the data.
Summary of results: Preliminary findings demonstrate that structural factors such as government and hospital policies, the organization of teams, and institutionalized professional relationships shape the opportunities and nature of interprofessional interactions within the context of discharge. These structures also give rise to particular forms of interprofessional relations and negotiations through which professionals attempt to exert their understanding of their role in relation to caring for or managing the patient.
Conclusions: The hospital focus on timely patient discharge requires effective interprofessional assessment and collaboration. This study provides insight into the range of factors that constrain and facilitate these interprofessional interactions and which must be understood in efforts to improve such health care services through continuing education and quality improvement initiatives.
Take-home messages: Interprofessional continuing education programs need to address the structural factors that shape interprofessional interactions in discharge if aiming to improve this hospital process.

9L/6
Interprofessional Collaborator Assessment Rubric (ICAR): A valid and reliable tool for medical educators and learners

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(Presenter: **Manon Tremblay**, Hopital Montfort, Direction des affaires universitaires, 713 Montreal Road, Room 2D137, Ottawa A1C 5S7, Canada)

Background: The Institute of Medicine's report 'Crossing the Quality Chasm' (2001) advocates for the delivery of high performing, patient-centred, team-based care. CanMeds roles clearly outline the need for medical personnel to develop competencies as strong collaborators within the healthcare system. Measuring collaboration however, remains elusive.
Summary of work: In 2009, the Interprofessional Collaborator Assessment Rubric (ICAR) was developed in French and English (Curran et al.) and its content validity studied through a pan Canadian expert Delphi process. A second study continued the examination of the psychometric properties of the French language ICAR with a multiprofessional group of healthcare educators. Using the ICAR, the educators were asked to rate 6 actors in a videotaped simulated team meeting, twice within a two-week period.
Summary of results: Cronbach's alpha (0.70-0.90) showed a strong internal coherence of the ICAR. Each of the six interprofessional collaborator ICAR competencies demonstrated good intra-evaluator reliability (ICC: 0.78-0.90) as did the competency dimensions (ICC: 0.79-0.89). However, the analysis revealed poor Kappa coefficients (< 0.40) for the individual behavioral indicators that are linked to each dimension. Although inconclusive, the factorial analysis tended towards 8 factors to group the behavioural indicators.
Conclusions: The ICAR demonstrated strong internal coherence and good intra-evaluator reliability. The factorial analysis showed a tendency towards eight factors, however, further studies are needed to continue the examination of the ICAR's construct validity.
Take-home messages: The ICAR is a valid and reliable tool available in both Canadian official languages that can be used by medical educators to assess the CanMeds collaborator role within a simulated or clinical setting.

9M Short Communications: Research
Location: Club D, PCC

9M/1
Manchester Medical Research Student Society (MMR Soc): Promoting research and preparing medical students for a career in academia

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Background: Medical students should be exposed to research and inspired to enter academic medicine, which is important to reverse its decline. MMR Soc is a new student led organisation that aims to promote interest in academic medicine amongst medical students.
Summary of work: Four lectures were delivered by leading academics to promote research amongst medical students and equip them with skills needed for an academic career. Topics included: research principles, intercalated degrees, and presentation and publication skills. Questionnaires were used to evaluate the lectures and investigate changes in intention to undertake research and enter academic medicine.
Summary of results: After hearing about academic medicine, 95% (n=130) of attendees felt more inspired to embark on a career in academia when compared to the start of the lecture. After learning about intercalation, 87% of attendees (n=110 attended) felt that they were more likely to intercalate. 70% (n=140) of attendees felt that the lecture on publications and presentations would help them achieve these things in the future. The lecture series has further developed and will be available as an e-learning resource supported by the medical school.
Conclusions: Most attendees found the lectures useful. Moreover, after the lectures many felt well informed about aspects of academic medicine and were more likely to undertake research. Finally, the MMR Soc educational lecture series increased awareness of research and the skills needed in an academic career.
Take-home messages: Peer led lectures on academic medicine at medical school are a good way to encourage medical students to enter the field and help reverse its decline.

9M/2
Tracking medical students' involvement in research and attitudes toward future research

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Background: Clinician researchers have been called an endangered species and concerns remain about how best to attract students to careers that include research. Such researchers are needed both for translating laboratory discoveries into clinical practice and for the development of meaningful curricula for future clinicians. Correlational studies have demonstrated associations between research experience in medical school and career achievements in academic medicine. Despite this the understanding of medical students' decision-making regarding research involvement remains limited.
Summary of work: Self-report surveys were administered to Year1 Sydney Medical Program (SMP) students in 2009 then repeated at the end of their final year in 2012. The surveys included research experiences before and during medical school, attitudes toward research, and future research aspirations. A sample of fourth year students was interviewed about their decision making processes regarding research.
Summary of results: Both research involvement before (46%) and during (42%) medical school had significant impact on future intentions. Experiences within the course ranged from short independent learning projects to substantial honours projects. Attitudes toward research were similar in Years 1 and 4, except fourth year students were less likely to agree that research careers mean a lower salary.   Interviews identified factors influencing decisions about research, some amenable to intervention. Students expressed flexibility about future research involvement, even if likelihood ratings were low.
Conclusions: Research experience during and prior to medical school promotes research intentions. Interview findings highlighted areas for action.
Take-home messages: Understanding students' research experiences and attitudes provides opportunities to influence their decisions about future research involvement.

9M/3
Undergraduate students' learning processes in a short research programme for medical education

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Kazumi Sakashita (Gifu University, Medical Education Development Centre, Gifu-city, Japan)

Background: Although the importance of developing research skills for scholarship and professional practice has been acknowledged as a pivotal learning outcome of medical education, little is known about medical undergraduate students' participation in the research activity and perceptions of research experience. The purpose of this pilot study is to examine how undergraduates perceive research and what difficulties they found during the research process.

Summary of work: Data collection was undertaken at Gifu University which provides second-year medical students with a 5-week selective course of research. Classroom observations and semi-structured interviews to seven students were conducted over five weeks in 2013. The qualitative data obtained were analysed by coding and categorising of the interview transcripts.

Summary of results: Researching prompted undergraduates' inquiring mind and motivated their active learning in a team. They stated an awareness of the relevance of research skill development in relation to their future learning/career. However, they identified practical difficulties in the process of research design, information gathering and critical analysis. Moreover, this study found that students' cultural assumptions were essential factors affecting their participation, including their values of group harmony and hierarchy consciousness related to power relations with facilitators.

Conclusions: Research programme provides a student-centred learning environment which cultivates an inquiring mind to encourage continuing professional development. This study suggests that facilitators need to understand their research process, the difficulties students found during the research process and their perceptions of the extent of their autonomy.

Take-home messages: Undergraduate research programme has the potential for enhancing students' research skills and competencies for lifelong learning.

9M/4
Inculcating a research culture in a PBL curriculum

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Background: Research, critical appraisal skills and Evidence-based Medicine are important competencies addressed by all health professionals' education institutions. In order to become a habit, consciously and unconsciously practiced, it is important to introduce it early and maintain its practice. The rationale of the approach described is based on the early and repetitive introduction and integration of research in the weekly PBL activities in a PBL curriculum. The aim of this study is to report the experience of applying this strategy in a PBL curriculum.

Summary of work: The Evidence-Based Problem-Based Learning (EBPBL) was introduced in years one, two and three of the five years medical program. Every week, one student in each PBL group would search for and select a research article related to the problem of that week. At the end of the second PBL session, the student presents a summary of the research article and a discussion is carried out within the group. Following this session, the student uploads the article on the blackboard to be seen by all students in the other PBL groups. Accordingly, students will read all articles uploaded and rate each as "Nice" or "Essential" to read.

Summary of results: Out of the total 302 students, 66% thought that the EBPBL was important in their medical education. 86% reported that the EBPBL program had introduced them to medical research, 86% said that it helped them to appreciate the importance of research in medicine.

Conclusions: The results demonstrated that an approach helped in inculcating a research culture in the integrated PBL curriculum.

Take-home messages: Research culture should be inculcated early in the curriculum and practiced.

9M/5
Distinction Tracks: Enhancing and Supplementing the Student Learning Experience Through Longitudinal Experiences in Areas of Interest

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Ruth B Greenberg (University of Louisville School of Medicine, Academic Affairs, Louisville, Kentucky, United States)

Background: Exposure to research can influence students' decisions about career pathways. Also, students seek research experiences to prepare for competitive residencies and practice. A growing trend is to create "Distinction in Research Tracks," focused, formal, longitudinal experiences, outside of the formal curriculum. We initiated such a track in 2010, and are now launching other tracks.

Summary of work: We started with 24 students. Existing tracks use a model in which students find a mentor; develop a project proposal; submit the proposal to a committee; and, if approved, complete and present the project either locally or at an external meeting. We modified this approach by adopting a cohort approach and adding formal didactic sessions. In response to student feedback and demand, we have started additional tacks in global health, and teaching, and will start one in business.

Summary of results: In June, 17 of the first cohort will graduate with distinction in research. About 25 have been accepted in the next two classes.

Conclusions: Designing and delivering new distinction tracks required human and financial resources, some of which were unanticipated. Student responses were very positive. Our new track has positively impacted the learning experience and has led to the development of additional tracks.

Take-home messages: Distinction tracks provide students with opportunities to explore their passions in medicine outside of the formal curriculum. However, before launching a distinction track, a school should consider which model to introduce and identify the resources needed. Distinction tracks may represent one strategy to increase the number of students who choose a pathway in academic medicine.

9N Short Communications: Patient Safety 1

Location: Meeting Room 2.1, PCC

9N/1

Exploration of PGME Modernization on an EU level: Visions for Adoption of Patient Safety Principles in PGME

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Johan Groothof (University of Groningen, Department of Health Sciences, Groningen, Netherlands)
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Background: Patient safety training and education of health-care professionals have neither kept pace with advances in patient safety, nor with workforce requirements. The introduction of patient safety in postgraduate medical education (PGME) is necessary and timely. This research aims to unfold synergies as well as variances regarding patient safety principles among EU countries.
Summary of work: An exploratory field study was conducted combining a semi-structured questionnaire with face-to-face expert interviews. The so-called "CIA-project" was developed in order to adopt a three-dimensional approach, focusing on a) Current situation and trends, b) Importance of developments and desired innovations, and c) Attainability of the desired innovations. The interviews were held among policymakers in eight selected EU countries. Eight variables related to patient safety in PGME were selected to compare existing programmes.
Summary of results: Most countries indicate the need for more generalists. Furthermore, all countries indicate increasing necessity of inter-professional medical education and collaborative learning. Additionally, an increasing trend for implementation of standardized evaluations in PGME exists to measure the quality of training groups as well as the safety of the learning environment.
Conclusions: To increase patient safety in PGME, the development of general competences additional to medical knowledge is necessary. Notions of policy makers in the EU show a high degree of conformity concerning this issue.
Take-home messages: PGME programme directors should develop structured competency-based programmes. The common understandings regarding PGME curriculum renovation in EU countries, instigates to further research the potential benefits for an EU policy.

9N/2

Why do doctors make mistakes? The role of salient distracting clinical features

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Tamara Van Gog (Erasmus University Rotterdam, Department of Psychology, Rotterdam, Netherlands)
Kees Van den Berge (Erasmus University Rotterdam, Department of Internal Medicine, Rotterdam, Netherlands)
Jan LCM Van Saase (Erasmus Medical Center, Department of Internal Medicine, Rotterdam, Netherlands)
Henk G Schmidt (Erasmus University Rotterdam, Department of Psychology, Rotterdam, Netherlands)

Background: Minimizing diagnostic errors requires understanding the mechanisms underlying flaws in clinical reasoning. This experiment investigated whether salient distracting features (i.e., findings that tend to grab physicians' attention, because they are strongly associated with a particular disease, but are indeed unrelated to the problem) misdirect diagnostic reasoning, causing errors.
Summary of work: Seventy-two internal medicine residents diagnosed 12 clinical cases (6 simple; 6 complex) in 3 different formats: without a salient distracting feature (SDF), with a SDF in the beginning of the case, with a SDF late in the case. In a within-subjects design, each participant solved 2 simple cases and 2 complex cases in each format.
Summary of results: On complex cases, the presence of early-SDF decreased the proportion of correct diagnoses compared both to cases without SDF (0.18 vs 0.43; $p<.001$) or with late-SDF (0.18 vs 0.36; $p<.001$). SDFs did not affect performance when they came late in complex cases and on simple cases.
Conclusions: SDFs encountered early in complex cases indeed decreased diagnostic performance. The adverse effect of SDFs was substantial. (Note that the cases with early- or late-SDF were exactly the same except for the SDF location). An explanation may be that when SDFs that strongly point towards a disease are encountered early in a case, the script of that disease becomes highly activated in working memory, blocking access to alternative scripts.
Take-home messages: SDFs present early in a case may misdirect reasoning, and physicians might be aware of the need to overcome their influence to avoid errors.

9N/3

Feasibility and psychometric properties associated with a 360° Patient Safety Assessment Tool (PSAT360°) to assess medical residents' patient safety skills

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Vernon Curran (Memorial University, Medicine, St. John's, Canada)
Karla Simmons (Memorial University, Medicine, St. John's, Canada)

Background: Increasing complexity and demands within the health care system are influencing approaches to patient care delivery, patient safety education and assessment. Multisource Feedback (MSF)/360° assessment is an ideal approach to assessing residents' patient safety competence since it provides them with formative feedback on their performance from multiple assessors and highlights areas in need of improvement.
Summary of work: This project seeks to develop a valid and reliable MSF/360° tool (PSAT360°) to assess medical trainees' patient safety competence. The work reported here is based on Phases 1 & 2 of an overall 5 phase mixed method study which follows an iterative, sequential mixed method approach. This involved developing and pre-testing the PSAT360°. Subsequent phases will involve pilot-testing the PSAT360° (Phase 3), providing residents with a feedback report (Phase 4) and evaluation (Phase 5).
Summary of results: The design and content of the tool was informed by a systematic literature search, environmental scan, interviews with key experts, focus groups with end users - residents and assessors (program directors, faculty, nurses, allied health professionals). Data was collated from all sources and themes were identified. A tool was drafted and reviewed via Delphi survey with key experts.
Conclusions: The majority of participants support a MSF method to assess trainees' patient safety competence. Numerous themes including risk management, disclosure, ethics, communication, collaboration emerged as being central to trainee assessment. It is anticipated that the results of this study will inform future patient safety educational initiatives, including curriculum, instructional methods and faculty development programs.

9N/4

Embedding Patient Safety into Postgraduate Medical Education: A cross-disciplinary critique

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Sarah Yardley (Research Institute for Primary Care and Health Sciences, Keele University, Keele, United Kingdom)

Background: Patient safety is increasingly recognised as an essential theme in contemporary medical education. A huge proliferation of educational interventions in safety has occurred but, analysis of the realities of implementation and attention to the theoretical underpinning of such interventions is often lacking.
Summary of work: We developed a patient safety educational programme for all Foundation trainees across the North Western Deanery (n=1000): 'Lessons Learnt: Building a Safer Foundation'. This comprised monthly facilitated case-based discussions of patient safety incidents encountered in the workplace. Evaluation comprised before and after comparison of patient safety knowledge, skills and behaviours using a combination of bespoke and validated tools. Subsequently, we employed cooperative inquiry to critically examine our work, through the lens of socio-cultural experiential learning theories.
Summary of results: 'Lessons Learnt' was well-received by trainees who demonstrated significant improvements in safety knowledge, skills and behaviours. Through cooperative inquiry we have identified how reflective practice and experiential learning were enacted in practice. Socio-cultural theories offered insight into the impact of institutional culture on learning about safety. We will discuss implications arising from our analysis which identified gaps between theoretical and in-practice approaches to safety interventions.
Conclusions: Educational interventions in safety can benefit from use of socio-cultural experiential learning theories. Cooperative inquiry offers tools to enrich understanding of how interventions are enacted in practice which could inform future approaches to sustainable integration.
Take-home messages: An appreciation of theory is required to advance education in patient safety. Safety experts, educationalists and practitioners should collaborate to ensure sustainable curricular integration which takes into account the complexities of practice.

9N/5

Exploring deficiencies in the non-technical skills of junior doctors using simulated critical incidents

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Background: Non-technical skills (NTS) such as decision-making and team working are cognitive and social skills that combine with technical skills to facilitate safe and effective performance. To improve patient safety we

must equip our healthcare professionals with the appropriate NTS to minimise or mitigate errors. This study aimed to identify the underlying deficiencies in NTS which lead to errors made by junior doctors in acute care.

Summary of work: Following ethical approval, 38 junior doctors participated in authentic simulated critical incidents followed by audio recorded debriefs. Errors have previously been identified using amplification of Reason's generic-error modelling system (GEMS). Each error was reviewed by two researchers to identify whether it was precipitated by a deficiency in NTS. Deficiencies were coded using a prototype NTS taxonomy for junior doctors in acute care by template analysis.

Summary of results: Analysis for this study is currently ongoing. Results will include the proportion of errors attributable to deficiencies in NTS and the categories of NTS that were identified.

Conclusions: Deficiencies in NTS underpin many of the errors made by junior doctors in acute care. Some types of error (according to classification using GEMS) are associated with specific NTS deficiencies, such as the link between rule-based mistakes and prioritisation. Patterns and associations will be explored and discussed.

Take-home messages: NTS are crucial to the care of acutely unwell patients. Identifying deficiencies in NTS using this method can allow us to target the training of appropriate NTS required to reduce error and improve patient outcome.

9N/6

Specification of an educational intervention in terms of behaviour change techniques

*Moira Cruickshank (University of Aberdeen, Health Services Research Unit, Aberdeen, United Kingdom) (Presenter: **Jennifer Cleland**, University of Aberdeen, Division of Medical and Dental Education, School of Medicine and Dentistry, Foresterhill, Aberdeen AB25 2AZ, United Kingdom)*

Background: This study aimed to code a patient safety educational intervention, designed without a theoretical basis, into behaviour change techniques (BCTs) and link these to variables in the Theory of Planned Behaviour (TPB).

Summary of work: Final-year medical students (n=93) completed TPB-based questionnaires assessing cognitions about two patient safety-related communication behaviours on the first (Time 1) and last (Time 2) days of a 'Professional Practice Block'. The course materials were coded for BCTs and labelled according to Abraham and Michie (2008). BCTs were systematically linked, using a consensus framework (Michie et al., 2008), to underlying TPB variables which were predicted to change between Times 1 and 2.

Summary of results: Agreement between coders was adequate (Krippendorff's alpha range 0.65-1.00). Eight BCTs were identified from the course materials, delivered with varying frequency. Attitude was targeted three times; subjective norm, four times; perceived behavioural control, 13 times. All TPB variables changed significantly between Times 1 and 2. Effect sizes: attitude 0.7, subjective norm 0.6, perceived behavioural control (PBC) 1.0, intention .07.

Conclusions: This study demonstrates that interventions that are not explicitly based on theory can be coded reliably into BCTs. This may facilitate the contribution of evaluations of atheoretical interventions to a cumulative evidence base for testing theory. Effect sizes of change in targeted variables were variable. There was also variation in the number of times that each variable was targeted. Thus, a method for specifying intervention intensity is proposed.

Take-home messages: The effect of teaching interventions can be measured using behaviour change theory.

9O Workshop: Progress testing: Implementation of an international consortium
Location: Meeting Room 3.5, PCC

Carlos Fernando Collares (Maastricht University, Educational Development and Research, Universiteitssingel 60 - Room N5.12, Maastricht 6229ER, Netherlands)
CPM van der Vleuten (Maastricht University, Educational Development and Research, Maastricht, Netherlands)

Background: For some years, an international progress test consortium has been carefully prepared. Some concerns, such as content specification, as well as purposes and uses of test scores have been debated, but many issues remain to be addressed thoroughly, such as the impact of cultural aspects and best psychometric practices.
Intended outcomes: To make the international progress test program a useful tool to enhance learning in the health professions worldwide, while following the latest recommendations for large-scale cross-cultural assessments, and thus providing state-of-the-art accuracy for institutional benchmarking.
Structure of workshop: Presentation of current developments in the international progress test consortium. Debate about recent scientific evidence with implications in international progress test endeavors. Creation of task groups and formulation of strategic action plans.
Who should attend: Coordinators of progress testing programs and deans or other stakeholders of institutions who are already part of the initiative or that are interested in joining the consortium.
Level: Intermediate

9P Course: AMEE-Essential Skills in Medical Education Assessment (ESMEA)
Location: Meeting Room 4.1, PCC

Closed Session

9Q Course: AMEE-Research Essential Skills in Medical Education (RESME)
Location: Meeting Room 4.2, PCC

Closed Session

9R Workshop: The future of international student exchanges in health professions education: Identifying weaknesses and sharing strengths
Location: Meeting Room 2.2, PCC

William Burdick (Foundation for Advancement of International Medical Education and Research, FAIMER Education, 3624 Market Street, 4th Floor, Philadelphia 19104, United States)
Alice McGarvey (Royal College of Surgeons in Ireland, Medicine & Health Sciences, Dublin, Ireland)
Agostinho Sousa (IFMSA, Ferney-Voltaire, France)

Background: The purpose of this workshop is to identify challenges and opportunities associated with student exchange in health professions education and identify resources that can be utilized to facilitate and promote these exchanges.
Intended outcomes: Workshop facilitators and participants will examine and suggest resolutions for issues that emerge when implementing international exchange, generating insights from both faculty and student perspectives, and concluding with a summary and evaluations.
Structure of workshop: Workshop participants will be invited to interact to identify issues, solutions, and innovations related to the following:
Safety: How do you judge safety? How is student safety maintained once they are abroad?
Fairness: How do we ensure a fair exchange between schools? What measures are used to judge the quality of a program? What process facilitates recognition of exchanges? How do you engage schools in international exchange?
Students: How are students selected? How are students best oriented to the experiences they will have during the international exchange?
Ethics: What common ethical issues are faced by students and schools during elective exchanges? How are breaches of ethical behavior either during or after the elective managed?
Who should attend: Faculty and students interested in international exchange. Students are highly encouraged to attend.
Level: Intermediate

9S Course: AMEE-Essential Skills in Computer Enhanced Learning (ESCEL)
Location: Meeting Room 3.1, PCC

Closed Session

9T Workshop: Narrative Assessment and Evaluation in Competency Based Medical Education: Why more than ever our words matter
Location: Meeting Room 3.2, PCC

Paul Hemmer (Uniformed Services University, Medicine, 4301 Jones Bridge Road, Bethesda 20814, United States)
Janice Hanson (University of Colorado, Pediatrics, Aurora, United States)
Marjan Govaerts (University of Maastricht, Dept. of Educational Development and Research, Maastricht, Netherlands)
Lindsey Lane (University of Colorado, Pediatrics, Aurora, United States)

Background: With competency-based education, calls have increased for greater use of language based data in assessment; these words that faculty use to describe learners' performance will then be pivotal in developing a descriptive narrative to be used as a source of evidence to judge their progression. However, such descriptive comments may lack specificity, timeliness, or detail that may result from current methods used to solicit such comments (e.g., an impersonal electronic evaluation form) and/or failing to understand the context of the evaluation process. We need to develop and use methods that engage people in assessment as 'qualitative inquiry'.
Intended outcomes: Participants will leave with a plan to implement a process to enhance descriptive evaluation within part, or all, of their educational program.
Structure of workshop: We will provide a brief overview of the problem and describe examples of successful programs of assessment that are built on valuing faculty observations and descriptions, such as "evaluation sessions" (group meetings). Participants will engage in large group discussion and role plays, and small group work to problem solve examples. Using video clips of learner presentations, case discussions or conversations with patients or faculty members, participants will formulate oral feedback, write descriptive comments about learner performance, create written feedback and participate in evaluation discussions about learners with other teachers. Several forms/data collection methods will be used during the workshop, and participants will discuss the strengths and weaknesses of each for different educational programs.
Who should attend: Students, faculty, anyone interested in improving the richness of descriptive assessment.
Level: Intermediate

9U Workshop: Are you as good an OSCE examiner as you think?
Location: Meeting Room 3.3, PCC

Ilona Bartman (Medical Council of Canada, Evaluation Bureau, 2283 St. Laurent Blvd., Ottawa K1G 5A2, Canada)
Sydney Smee (Medical Council of Canada, Evaluation Bureau, Ottawa, Canada)
Marguerite Roy (Medical Council of Canada, Research and Development, Ottawa, Canada)

Background: For over 20 years the Medical Council of Canada (MCC) has administered a high stakes OSCE to evaluate candidates for licensure. More recently, the MCC has begun evaluating the raters and providing individualized feedback regarding undesirable tendencies in an effort to minimize rater errors.
Intended outcomes:
Acquire knowledge about extreme rating
Develop self-awareness of rating tendencies
Reflect on individual rating tendencies
Learn what the literature says about OSCE examiners
Structure of workshop: Participants will be invited to complete brief self-assessments at the beginning of the workshop to survey assumptions about their scoring tendencies. Then, attendees will rate videos of two OSCE stations. These ratings will be entered into a report application while attendees participate in three presentations/discussions:
Overview of the Dove and Hawk phenomenon
A summary of research findings demonstrating some of the challenges to effective examiner training
The role of self-directed assessment.
Attendees will receive aggregate and individual (blinded) graphical feedback that compares group and individual ratings to the answer key. The organizers will review with participants how best to interpret the data. Any participants who wish to discuss their individual feedback may do so within the group or with a facilitator after the workshop. At the end, participants will be asked to complete the self-assessments again as a survey of the immediate impact of the workshop on self-perceptions.
Who should attend: OSCE examiners
Level: All levels

9V Workshop: Empathy begins at home: Peer support and student mental health
Location: Room A, Holiday Inn

Andrew Rix (Prepare to Share, Research, 21 Winchester Avenue, Cardiff CF23 9BT, United Kingdom)
Andrew Grant (Cardiff University, Institute of Medical Education, Cardiff, United Kingdom)

Background: This workshop is based on research carried out for a study commissioned by the GMC (UK). Evidence from a systematic review of the literature and from qualitative data gathered from medical students via focus groups and narrative interviews was that students in need of support preferred to get help and support from their peers than from their medical school. Peer support schemes are seldom evaluated.
Intended outcomes: Understanding different peer support initiatives, how to implement, improve and evaluate them.
Structure of workshop:
Introduction to the literature - 10 minutes
Small group work examining examples of peer-led initiatives. Identification of generalizable principles - 30 minutes
Sharing and development of list of core qualities of peer-led initiatives. - 30 minutes
Input - Supporting students to evaluate and improve peer led support (without damaging the essential qualities) - 10 Minutes
Discussion: applying evaluation in practise - 10 minutes
Who should attend: Students - Medsoc, students union members, welfare and well-being officers
Medical school faculty with responsibility for performance and support
Level: Intermediate

9W Workshop: THE HELM COURSE: Development of a transformational leadership and collaborative management programme for medical trainees and other senior healthcare professionals
Location: Room B, Holiday Inn

Deepak Gupta (Great Western Hospital, Postgraduate Education, Marlborough Road, Swindon SN3 6BB, United Kingdom)
Alan Cook (Severn Deanery, Faculty Development and Education, Bristol, United Kingdom)
Amy Cook (Great Western Hospital, Postgraduate Education, Swindon, United Kingdom)

Background: The need: an integrated, practical and accredited leadership and management programme for medical trainees and other senior healthcare professionals including Consultants and nurses. Had to be based on knowledge, service improvement, realisation of the need for change and multidisciplinary interaction. Staged programme providing various levels of competence: CPD,certificate,diploma or Masters; Delivered by a mix of Academic and Practical Faculty; Affordable and sustainable. The format should be acceptable to various organisations and deliverable to a large number of participants. 3 modules of 2 days each: leadership and change, healthcare management and health economics, strategy and innovation. Participants include mostly senior postgraduate medical trainees, and some senior healthcare professionals
Intended outcomes: Understanding of the leadership and management needs of trainees and healthcare professionals; Awareness of the lacunae in clinical and managerial engagement; Knowledge about development of an appropriate curriculum; Going about accreditation; Project management; Assessment of outcomes.
Structure of workshop: interactive; discussion of the problem and the need; possible solutions; finding an appropriate solution: discussion about the curriculum, course length, faculty, participants, accreditation; interactive discussion of affordability and sustainability; how to assess outcome; management of service improvement projects; assessment of financial implications of the SIPs; development of business case for the course.
Who should attend: medical trainees, clinicians, managers, other healthcare professionals and educationists with an interest in healthcare leadership and management, and also in facilitating clinician-managerial engagement to increase healthcare organisations' (NHS or others) efficiency and output.
Level: Intermediate

9X Workshop: Emotions in the art and science of learning medicine
Location: Room D, Holiday Inn

Peter Musaeus (Aarhus University, Center for Faculty Development, Brendstrupgaardsvej 102, B, INCUBA Science Park, Aarhus N 8200, Denmark)
_Anne Mette Mørcke (_Aarhus University, Center for Faculty Development, Aarhus, Denmark)
Tim Dornan (Maastricht University, Department of Educational Development and Research, Maastricht, Netherlands)
Esther Helmich (University of Amsterdam, Centre for Evidence-Based Education, Academic Medical Center, Amsterdam, Netherlands)

Background: Humans experience emotions in childhood, adulthood and old age and in all sorts of situations at work, at home, when hospitalized etc. Humans cry, laugh, smile and sometimes say emotional things to each other. Everyday experience tells us that doctors, medical students and patients experience and express emotions but it does not say how to conceptualize emotion and what the significance of emotion is to medical education. The rapid increase in research on emotions within the past decades has led some commentators to identify an affective turn in the social sciences referring to the shift from a linguistic paradigm of studying social phenomena as discursive to a paradigm aiming to grasp the role emotions play as windows into the social world. This workshop invites educators and researchers to consider how students and health practitioners learn to communicate the proper emotions at the right time in emotionally taxing situations of human suffering; in other words, to what extent are emotions malleable by clinical experience and morality? It does so from two perspectives: (1) What are the implications to our educational programs of treating emotion as e.g. individual skill, clinical emotional competence or emotional intelligence? (2) What are the implications of situating emotions at the nexus of cultural identity and communal morality?
Intended outcomes: Participants will:
Be introduced to contemporary theories of emotions.
Draw a theoretical map of the complex multi-level phenomena of emotions in the landscape of learning medicine as art and science
Discuss the implications of an affective turn to the practice of medical education.
Structure of workshop: Short introductory lectures to topic followed by discussion-based teaching with participants' reflections and one or two cases from research/cases from healthcare being used in case-based teaching format.
Who should attend: Researchers, MD/practitioners, and faculty developers.
Level: Advanced

9Z Posters: Teaching and Assessing Communication Skills

Location: South Hall, PCC

9Z/1

Using a checklist to assess history-taking skills of final year medical students

Wanaporn Anuntaseree (Prince of Songkla University, Pediatrics, Faculty of Medicine, Kanjanawanich Street, Hat yai, Songhkla 90110, Thailand)
Kitja Panabut (Prince of Songkla University, Pediatrics, Faculty of Medicine, Hat yai, Songkhla, Thailand)
Nannapat Pruphetkaew (Prince of Songkla University, Epidemiology Unit, Faculty of Medicine, Hat yai, Songkhla, Thailand)

Background: History-taking skills are essential in a medical curriculum. Obtaining the history guides the physical examination. It is a key to reach a diagnosis.
Summary of work: This study was performed to assess history-taking skills of last year medical students when they attended the Department of Pediatrics, Prince of Songkla University in southern Thailand. Students were assigned to take the medical history from well-trained simulated mothers using a checklist designed for the conditions under direct observation within strict time limits. The checklist included three sections: (1) interview initiation, (2) interview conduction, and (3) asking the details of symptoms and making the diagnosis.
Summary of results: Eighty-three students participated in this study. Sixty-six percent of the students had a good performance under the category of interview initiation. Under the category of interview conduction, 89.2% asked open and clear questions, 50.6% asked questions in the appropriate sequence, 65.1% summed up the results of the interview properly, and 94% expressed nonverbal communication with mothers and listened to their words. In Section 3, 47% of the students had a score equal to or greater than 60%. The checklists with high scores were not associated with the students' grade point average (GPA).
Conclusions: Using a simulated mother with a structured checklist is useful in evaluating student performance in history-taking skills. The skills of medical students vary among different sections and are not sufficient in quality in some categories.
Take-home messages: It is necessary to emphasize and repeat training in history-taking skills for the last year medical students and reassess periodically to improve the quality.

9Z/2

Role-plays with peers are fun – but are they of any use in learning patient interviewing?

Asta Toivonen (Faculty of Medicine, University of Helsinki, Hjelt Institute, P.O. Box 41, Helsinki FI-00014, Finland)
Eeva Pyörälä (Faculty of Medicine, University of Helsinki, Hjelt Institute, Helsinki, Finland)

Background: In Helsinki the use of simulations alongside role-plays in communication skills studies started in 1997. Role-plays were given up in 2002 but reintroduced in 2010. Since then these learning methods have been used in a patient interview course for 2nd year students. The aim of this study was to assess how students assessed their patient interview learning.
Summary of work: Data were collected with a web-based self-assessment in the beginning and in the end of the course. Sixty-nine students (73.4 %) answered the questionnaire. It consisted of quantitative part of statements with 5-point Likert scales and open-ended questions. Statements were analyzed statistically. Open-ended answers were analyzed with content analysis. University's Ethical Board approved the study.
Summary of results: The statistical analysis showed students' patient interviewing skills improved along the course. The mean value for gathering information by using open-ended and closed questions improved from 3.30 (SD 0.65) to 3.77 (SD 0.69) (p<0.0001). The patient interviewing skills enhanced the students' self-efficacy in diagnostic skills. The mean value for the ability to offer information to the patient increased from 3.07 (SD 0.83) to 3.48 (SD 0.8) (p=0.002).
Content analysis showed role-plays were considered useful warm-ups for simulations and good rehearsal of the patient interview structure. Simulations were considered to be the most valuable learning experience in the course.
Conclusions: The students' self-assessed patient interviewing skills improved along the course. Students preferred simulations, but considered role-plays as good warm-ups reducing anxiety towards simulations.
Take-home messages: Role-plays and simulations together develop patient interview skills. Good communication skills enhance self-efficacy in diagnostic skills.

9Z/3

Patient feedback – impact of student gender on communication skills

Regina Ahrens (Institute of Family Medicine, Faculty of Medicine, Murtenstrasse 11, Berne 3010, Switzerland)
Sven Streit (Institute of Family Medicine, Faculty of Medicine, Berne, Switzerland)
Mireille Schaufelberger (Institute of Family Medicine, Faculty of Medicine, Berne, Switzerland)

Background: Literature shows gender differences in communication skills of medical students in self, peer- and tutor-evaluation favoring female students. But patient satisfaction related to the physicians' gender is still controversial. Our focus was on how the student's gender influences the patients' perception of communication skills.
Summary of work: In 2012, all 3rd year medical students from the University of Bern on practical training in a general practice were evaluated on their communication

skills by two patients per student. Evaluators were chosen in advance based on examination order. The non-anonymous evaluation took place directly after a consultation, containing 5 questions rated on a 4 point Likert Scale.

Summary of results: Overall, patients ranked students' performance high: 57% of the patients ranked the students highest possible in all 5 categories. Yet female students seem to perform significantly better than male students (p=0.04), especially in being interested (p=0.05), and in being empathetic (p=0.02). The trend was similar also when controlling for patient age and gender.

Conclusions: Female medical students seem to be more competent in some aspects of communication also when evaluated by patients. It remains to be shown how communication skills finally correlate with patient satisfaction. The results support our hypothesis that patients' perception of communication skills depends on the medical student's gender.

Take-home messages: Patients evaluated female students' communication skills better than those of male students in their 3rd year during consultation in a general practice.

9Z/4
Identifying and grading the current tools used in evaluating communication skills in surgical and medical trainees at the point of transition to independent practice

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Marie Morris (Trinity College Dublin, Medical Education, Dublin, Ireland)
Paul F. Ridgway (Trinity College Dublin, AMNCH, Surgery, Dublin, Ireland)

Background: Effective communication skills are essential to successful physician-patient relationships. Though necessary, little formal training has been integrated into current medical training schemes. Our objective is to systematically review the literature and to identify and evaluate the current tools used to assess communication skills in medical and surgical trainees at the point of transition to independent practice.

Summary of work: Two reviewers independently reviewed the literature to identify communication skill assessment tools, specifically for postgraduate trainees within the PRISMA framework, inclusion/exclusion criteria and search period. Databases: Pubmed, CINAHL, ERIC, EMBASE, PsycInfo, Psyc Articles, Cochrane.

Summary of results: Of the 300 abstracted articles, 54 identified communication skill assessment. These abstracts were screened for relevant content, eliminating a further 37 articles, leaving 19 for review. Of these, 5 were review articles, 1 did not fit criteria due to level of postgraduate training, 1 did not include medical personnel. Twelve articles were available for complete evaluation; 8 articles used OSCE/standardized

patient (SP) based exams in an observational (6) or interventional capacity (2), and 4 written evaluations, including 2 using author-developed questionnaires, 1 survey, and 1 self assessment validated tool. The levels of evidence were good, scoring 3-4 on the BEME guide.

Conclusions: Communication skills should be evaluated as one of the components of the medical professional, as established by certifying bodies. The reviewed literature is heterogeneous for objectives and measurement techniques for communication. Observed interactions, with patients or SPs, is the current favoured method of evaluation. Four studies showed no association with PGY level and communication skills ability.

Take-home messages: Conclusions cannot be made on whether communication interventions are beneficial in improving skill level. More research is needed to determine whether communication interventions are effective.

9Z/5
Teaching Public Speaking Skills is Essential For Future Medical Leadership

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Paul Baker (Royal Bolton NHS Foundation Trust, Medicine, Greater Manchester, United Kingdom)

Background: Leadership is an integral part of the medical profession. To be a good leader one needs to be able to express oneself effectively, to allow others to understand a vision and act on it. Oratory is the "the art or practice of formal speaking in public". Public speaking is something which we do every day as doctors, yet it is something which very few have been educated in. Good leadership through public speaking training is vital not only for our everyday practice but for the future of our profession as a whole. A literature search for "medical education" and "public speaking" OR "oratory skills" revealed very few relevant papers. No papers dealt with the need for teaching students for future leadership.

Summary of work: We have designed an educational intervention for medical students which will focus on the core skills required for oratory. Examples to enable them to avoid common mistakes and tips to improve the memorability of their presentation will be given. We hope to provide a second session where students can do presentations and receive feedback.

Summary of results: We will present data detailing how this intervention has been received.

Conclusions: For post graduate medics there are organisations such as Toastmasters International that enable even beginners to gain practice at public speaking. It would greatly benefit the profession if such courses counted towards continuing professional development.

Take-home messages: Public speaking is often thought to be something that comes to individuals innately, but this is not the case. Public speaking can and should be taught and practiced.

9Z/6

A clinical communication curriculum - lessons learned from a five year programme evaluation

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Background: Medical Students receive (mixed-method) clinical communication teaching during years 1, 2, 3 and 5. An online-survey was distributed to all medical students in 2012. Study purpose was to (1) investigate students' attitudes towards clinical communication, and (2) to evaluate the response of students towards current communication interventions in order to inform curriculum development.

Summary of work: In addition to participants rating/critiquing clinical communication teaching/teachers during their undergraduate years, the questionnaire-study captured data about participant beliefs. As examples: whether communication is "inherent", how its value is defined, and how well (or not) early exposure prepares them for the rigours of their first medical job. Prospectively, we asked them how they would change the curriculum, and how they would assess communication.

Summary of results: At 31/12/12 response n=329. Data-collection is ongoing, so a second 5-year cohort of students will be analysed (and added) in summer 2013.

Conclusions: Students indicated feeling prepared for the clinical environment by the teaching received and are keen to understand how communication relates to clinical practice. Discussion will include strategies for integration.

Take-home messages: The key message (thus far) is the need for enhanced integration with clinical contexts and environments.

9Z/7

Communication Skills Training Programs in Iranian Medical Schools: a national survey

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Narges Saleh (Tehran University of Medical Sciences, Educational Development Office, School of Medicine, Tehran, Iran)
Taraneh Dormohammadi (Tehran University of Medical Sciences, Internal Medicine, Tehran, Iran)

Background: Poor communication skills have been reported in many Iranian medical schools. The present survey aimed to gather the required information about the current situation of communication skills courses for medical students in Iranian medical schools.

Summary of work: Those medical schools that have a communication skills course have received the questionnaire by email. The data extracted from the questionnaires was then analyzed.

Summary of results: From 47 public medical schools only 12 schools have courses on communication skills. About 70% of the questionnaires were received. The courses were mainly held during pathophysiology (87%), 13% during the clerkship. Mean duration of these courses was 9 hours, (range: 2 to 21). The main teaching method was lecture (87%); the other teaching methods were small group discussion in 75%, role-playing in 12% and interview with a simulated patient in 12%. No assessment was performed in 45% of the courses. In others, however, various methods were used (OSCE: 17%, MCQ: 80%, Essay: 40%).

Conclusions: Despite the fact that communication skills abilities of many medical students are reported to be poor, related training programs are only part of the curriculum of 25% of the studied medical schools. The teaching methods in most of these courses seem not suitable for learning communication skills. Interventions targeting effective learning of communication skills need to be developed to help medical students understand the importance of communication and the complexity of communication issues in health care.

Take-home messages: We need more effort to enable our medical students to communicate well with their patients.

9Z/8

An effective teaching method to young physicians in Taiwan: Breaking Bad News by Role Playing

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Tsuen-Chiuan Tsai (E-Da Hospital, Medical Education, Pediatrics, Kaohsiung, Taiwan)
Pon-Eu Lai (E-Da Hospital, Oncology, Palliative Care, Kaohsiung, Taiwan)

Background: There are challenges to break bad news especially within the Asian cultural setting because of the strong family tie. We studied how the role playing method in small group teaching could improve the communication skills of young physicians in Taiwan.

Summary of work: We used role playing in small group for teaching skills of breaking bad news in our clinical training program. The participants included 6 year 1~2 residents & 12 post-graduated young physicians, divided as 6 per group/session. A hypothesized case of renal cell carcinoma was used, and the participants are asked to take a role of physician, patient or one of the families. The facilitator is a psychiatrist. The physician was assigned to disclose the unexpected bad news to the patient, while the family requested him/her to hide the truth that violated patient's right of autonomy.

Summary of results: This clinical training was rated with high satisfaction over 85%. 90% participants claimed that it was helpful and useful for improving their communication skills. More than 70% of participants reflected their impressive experience of standing next to the patient and the family as well.

Conclusions: Even though breaking bad news is especially challenging within a Taiwanese rural family,

young physicians are flexible to learn to act in the situation, gain empathy, to promote their communication skill in small group training by using role playing

Take-home messages: Role playing is an effective method to teach communication in a small group in Taiwan, especially for young physician to learn breaking bad news.

9Z/9
The Evaluation of Communication Skills Training in Breaking Bad News for the First Year Medicine Residents

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Rungniran Praditsuwan (Faculty of Medicine Siriraj Hospital, Mahidol University, Medicine, Bangkok, Thailand)

Background: Breaking bad news is an important clinical task, which can result in emotional stress of both the patients and the physicians. In addition, the physician-patient relationship could be compromised if the counseling has not been done properly. Currently, a two-day communication skills training for the first year medicine residents has been established. However, the efficacy of this training program has not been evaluated previously.

Summary of work: The standardized patients' encounters were video-recorded and assessed by 3 blinded, independent raters using the adapted breaking bad news schedule (BAS) at 2 weeks prior- and 8 weeks after the communication training program. Primary outcome was the difference of pre- and post- training BAS scores.

Summary of results: Twenty-eight residents were enrolled to the study. The median age was 28 years (range 26-30). The mean post-training BAS scores were significantly improved in 4 out of 5 domains of the BAS, including breaking the news (P= <.001), eliciting concerns (P= <.001), information giving (P=<.001) and general consideration (P=<.001). Setting the scene was the only domain of the BAS, which had no statistical difference of pre- and post-training score (P=0.07). Interestingly, while eliciting concern was the domain with the lowest pre-training scores, it was the domain, which the residents obtained the highest percentage change of the pre- and post- training scores.

Conclusions: The communication skills training program in breaking bad news was effective in improving the breaking bad news skills for the first year medicine residents.

9Z/10
Medical students' non-technical skills awareness – Breaking bad news

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Ricardo Tjeng (University of Beira Interior, Faculty of Health Sciences, Covilhã, Portugal)
Luís Patrão (University of Beira Interior, Faculty of Health Sciences, Covilhã, Portugal)

Background: Medicine teaching has suffered large changes over the years, undergoing the stage where it only consisted in text recitation, the stage when it focused on the practical teaching and the stage where the focus was on a solid scientific pre-medical training. Nowadays, combined with science, the need to emphasize other skills arose such as non-technical skills´ (NTS) training. These are specially beneficial in areas where events are rapidly developing, such as situational awareness, communication and teamwork. Training linked to NTS, such as knowing how to communicate bad news, should be an object of study and assessment.

Summary of work: Knowing if medical students feel prepared to deal with this particular NTS (bad news communication), identifying experience, different behaviours, action patterns, and use of SPIKE protocol related to this issue is important. A questionnaire with open and closed questions will be sent to all medical students from the 6-year course of the Faculty of Health Science, University of Beira Interior (Covilhã – Portugal). SPSS will be used for statistical analysis.

Summary of results: Survey application and data analysis are scheduled for April and May 2013.

Conclusions: Communication of bad news is an important medical skill, however, it is a difficult task even for experienced physicians. It is important to know future doctors' perceptions about this NTS, in order to create strategies to better prepare them.

Take-home messages: Better knowledge of medical students NTS awareness, specially in breaking bad news can help improve learning methodologies.

9Z/11
Non-verbal communication in a medical school - an example from Northern Sweden

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Karin Seijsing (Family Medicine, Dept of Public Health and Clinical Medicine, Umeå, Sweden)

Background: The relationship between a patient and a doctor is always power asymmetric. Studies have shown

that power is constituted by doctors and patients through verbal and non-verbal communication.

Summary of work: To explore how non-verbal communication can influence the patient-doctor relationship medical students in Umeå have pre-clinical training individually and in groups. Afterwards students sum up their experiences in written reflections. At first every student practices how voice and verbal communication are influenced by body balance and breathing. After theoretical insight into non-verbal communication students carry out a doctor-patient consultation. Half of the group acts as doctors. They are asked to go out of the room and are introduced to come back and show with bodily communication that they are totally uninterested in their student patients. The training continues with a doctor-patient consultation in a group of 7-9 students and a senior doctor as a discussion leader. One by one the students act as a doctor and as a patient while the other students are observers, focusing on doctor's and patient's agenda, non-verbal communication and power relations.

Summary of results: In the written reports afterwards many students have stressed that training non-verbal communication is important for establishing and maintaining a trustful relationship between patients and doctors. To meet or act as an uninterested doctor, caused embodied discomfort and feelings of power or subordination.

Conclusions: Further the reports have established that training non-verbal communication skills is one way to increase students' self-reflection capacity.

Take-home messages: Teaching non-verbal communication is important in training consultation skills.

9Z/12
Communication and consideration: Anamnesis Groups as an effective way of teaching reflective skills

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Elisabeth Dinter (RWTH, Aachen, Germany)
Janna-Lina Kerth (RWTH, Aachen, Germany)

Background: Following the change in German approbation regulations, training in patient-doctor communication became mandatory for future physicians. Reflection on one's communicational skills and attitudes is a crucial part of successful long-term relationships between doctor and patient. In German speaking countries, a peer-teaching concept addressing those skills has been established for over forty years: Anamnesis Groups.

Summary of work: In most medical schools, Anamnesis Groups are a facultative addition to the core curriculum. A small group of medical and psychology students meets once a week and one participant takes a patient's detailed history. Afterwards, the group gives feedback and discusses different aspects of the patient-"doctor" relationship as well as the conversation itself and some theoretical background on communication. In Aachen,

participants fill in a questionnaire before and after participation. Amongst others it enquires about the element the students benefitted from most and a self-assessment of their reflective competence on a five-point Likert scale.

Summary of results: Participants benefitted from all elements with a slight emphasis on discussion and their own history taking. We could find an increase in the self-assessed skills on reflection regarding communication patterns.

Conclusions: Anamnesis Groups can significantly contribute to an improvement in reflective skills in future physicians. Not only the experience of taking a patient's history, but also watching others do so and reviewing it encourages students to actively think about the process of communication and the effects it has on others.

Take-home messages: Anamnesis Groups as a form of peer teaching are an effective way of teaching communication and reflective skills.

9Z/13
Attitudes and Performances regarding Communication Skills among Year-Sixth Medical Students

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Background: Communication skills are considered medically necessary and vital for medical professionalism. Khon Kaen Medical Education Center has provided communication skills training for medical students since 2009. This study sought to determine students' current attitudes and performances in communication skills and examine factors related to these features in sixth year medical students.

Summary of work: An analytic cross-sectional study using a self-administered questionnaire (Cronbach's alpha = 0.82) was conducted to assess attitudes toward communication skills among 49 sixth year medical students. Additionally, 5 stations of ethical OSCE were also tested to assess their performances related to communication skills. Data were presented in median values and also categorized into good, moderate, and poor. Their associated factors were examined using Fisher's exact test.

Summary of results: Approximately two-third of medical students had a good attitude (69.37%), particularly about the necessary communication skills that medical students should learn as well as applying these important skills in their future careers. Only, slightly one-third had good performances (28.57%) in communication skills. Of note, they had limited performances in three aspects including listening and asking questions, making therapeutic relationships, and summarizing and closing communication. However, a statistically significant association was found between the mean attitude scores and performance scores (p= 0.038).

Conclusions: Students' attitudes and performances in communication with patients were good and associated. Their performances in three contents should be improved.

Take-home messages: Students' experiences with communication skills training during the clinical years are likely to shape their interaction with patients throughout their career.

9Z/14
Developing communication skills with GP trainees: the REAM approach

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Alex MacDonald (Wessex School of General Practice, Wessex Deanery, UK, GP Education Department, Portsmouth, United Kingdom)

Background: Communication skills development is one of the cornerstones of training for general practice. The subtleties of communication in the consultation can be an area with which trainees struggle. Increasing emphasis on the assessment of the consulting skills of trainees using simulation and role-play throughout training, has seen GP educators seeking to develop activities to focus on consulting skills early in training.

Summary of work: The aim of this work was to design a teaching activity around communication skills which would raise the awareness of trainees to their approach to consulting in order to help them tune into the areas they needed to develop. GP trainees (ST1-3, n 76) attended a simulated consultation circuit comprising cases written by RE. Although reflecting clinical cases and played out as such in role play, the scenarios were non-medical in their subject matter. This was intended to help the trainees focus on the process rather than the content of the 'cases.' Trainees were scored using the RCGP marking scheme and they received written feedback on their performance.

Summary of results: Trainees in ST1/2 valued the opportunity to role play the problem solving element of the consultation and demonstrated use of a consultation model to structure their approach.   ST3 trainees felt that the lack of clinical content made the cases less valuable for their stage of learning.

Conclusions: The REAM approach to role playing case scenarios offers educators a diagnostic tool to explore consultation skills with trainees in the early years, a means to explore process over content. It is, however, less relevant and valuable to trainees in their final year.

9Z/15
Communication Skills Training for Foundation Year 2 Doctors

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Background: The 2-year Foundation programme in the UK aims to ensure that newly qualified doctors develop their clinical and professional skills in readiness for more advanced training. Foundation year (FY) 2 doctors take on an increasing responsibility for patient care and are expected to demonstrate an ability for effective communication in increasingly challenging circumstances.

Summary of work: We conducted a survey to evaluate the communication skills training received by FY2 doctors at Medway and Lewisham Hospitals, and the impact this has had on their performance. We received 23 responses.

Summary of results: All respondents rated communication skills in medical practice as 'very important' with 78% strongly agreeing that ineffective communication skills contributed to errors in healthcare. Ninety six percent of respondents had received formal training on aspects of communication as medical students, but only 52% had such training during their FY1 year. Despite that, 30% said they have encountered a situation which they felt required communication skills beyond their training or competence. When asked to rate the various methods of delivery of training, simulation was rated as the most effective by the majority of respondents (65%).

Conclusions: Further emphasis should be placed on non-technical skills (NTS) training for junior doctors. Simulation is an effective teaching tool and should be utilized to this purpose.

Take-home messages: The integration of both technical and NTS like communication and decision-making facilitates successful task performance. NTS training for FY2 doctors should be tailored to fulfill the requirements set in the Foundation programme curriculum and to achieve the desired outcomes of Foundation training.

9Z/16
Peer assisted learning is effective for teaching communication and history taking skills

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Background: Peer Assisted Learning (PAL) is a validated educational tool, often used to supplement formal teaching. This study evaluated the effectiveness of PAL for first-year medical students with particular regard to the development of their communication and history taking skills.

Summary of work: 410 first-year students were divided into small groups and allocated a peer-tutor in the clinical phase of the medical course. Tutors delivered teaching on communication and history taking skills and supervised the tutees in practice. An interactive session using electronic keypads was conducted to evaluate the peer-led sessions. 4-point Likert scales were used to quantify responses. University Research Ethics Committee approval was obtained.

Summary of results: 91% of tutees considered PAL to be a useful supplement to formal teaching. 89% believed the scheme highlighted areas where they could improve their history taking skills. The PAL scheme enabled 88% to improve their confidence with history taking. 83% improved their appreciation of psychosocial impacts, and 95% of tutees reported an improvement in their communication skills. Additionally, 67% were more confident in suggesting differential diagnoses and 87% improved their ability to suggest management plans.

Conclusions: This is the first study to demonstrate that PAL schemes improve the confidence and ability of medical students in developing an appreciation of the history taking process, as well as improving their communication skills.

Take-home messages: PAL is beneficial for first-year medical students in improving their basic clinical competencies, including history taking and communication skills.

9AA Posters: Selection: Undergraduate and Postgraduate
Location: Terrace 2, PCC

9AA/1
Cognitive and non-cognitive features of first year medical students: impact of gender on selection?

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Background: Switzerland, like other Western countries, faces an insufficient number of medical students graduating each year, to meet aging population needs. However, selection for medical studies is severe and based mostly on MCQ scores, thus ignoring non-cognitive features particularly relevant for selecting 'good' doctors. Contribution of non-cognitive features to optimize selection of medical students has not been fully investigated.
Summary of work: to establish first-year medical students' cognitive and non-cognitive profiles; - to compare how such profiles features contribute to success by gender and in three different selection environments. Method: We assessed first-year medical (N=180), psychology (N=150) and sciences (N=160) students on personality traits (NEO), learning approaches (SPQ-R) and professional motivations and collected high-school final grade (HSG), first-year exam grades (FYG) and socio-demographic data. T scores were used to compare students' personality with a general reference population; multivariate linear regressions were run to analyze how gender, NEO, SPQ-R and HSG contribute to FYG, and ANOVAs to compare medical, psychology and sciences students.
Summary of results: Medical students showed high extraversion (90-percentile) and low agreeableness (30-percentile). Regression model (r2=0.301, p=0.001) differed by gender (p=0.02). Men's HSG, SPQ-deep motive, NEO-openness (positive) and NEO-agreeableness (negative) significantly contributed to FYG. Women's HSG only did. Comparison with other students will be presented at the conference.
Conclusions: Medical school students present specific profiles. Whereas cognitive ability influenced all medical students' MCQ first-year exam score, non-cognitive traits impacted men's success only.
Take-home messages: Taking into account non-cognitive measures to a cognitive test might better equilibrate gender selection for medical school and thus better fulfill societal public health needs.

9AA/2
Dare to Doctor: An Access to Medicine Summer School

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Background: Access to medicine summer schools are a commonly used, but under studied widening access initiative in the United Kingdom, aimed at school students from lower social classes, who lack self confidence and underestimate their chances of success in applying for a place at medical school.
Summary of work: The University of Bristol's Swindon Academy ran Dare to Doctor, an access to medicine summer school. Each student (N=24) completed a questionnaire before and after the summer school. They were questioned on their commitment to medicine and their chances of success. The questionnaire used a 5-point scale from strongly disagree to strongly agree, with space for free-text responses. Students also completed an evaluation questionnaire. The aim of this study was to investigate the role of access to medicine summer schools as a widening access tool.
Summary of results: After the summer school students rated themselves as better prepared for interviews (Mean 4.10 vs 2.90, P<0.001) and personal statement writing (4.20 vs 3.20, P<0.001). Before and after the summer school all students felt strongly committed to medicine. Student evaluation was overwhelmingly positive. Most found clinical shadowing to be most enjoyable (81%), and mock interviews most useful (86%).
Conclusions: After Dare to Doctor students felt more confident in facing interviews and personal statement writing, and found the experience useful and enjoyable. However only students already strongly committed to medicine attended.
Take-home messages: Access to medicine summer schools is successful in boosting the confidence of the committed few who attend them, but a more proactive outreach is needed to target a wider audience.

9AA/3
Research in action: using Q sort to support widening participation in medicine

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Suzanne Vaughan (University of Manchester, School of Medicine, Manchester, United Kingdom)

Andy Brass (University of Manchester, School of Computer Science, Manchester, United Kingdom)

Background: Diversity in medical education has positive implications for students, staff, patients and wider society. Individuals from underrepresented groups often have negative perceptions about medical school and their ability to fit in or succeed. To achieve diversity in medicine, young people need opportunities to learn about the attributes and achievements required for a place at medical school, and to challenge negative stereotypes.

Summary of work: This innovative, interdisciplinary project uses Q sort, a statement sorting task, to stimulate discussion around young people's perceptions of medical students and medicine whilst collecting data to contribute to the widening participation (WP) literature. We report on the initial findings from twenty groups of school pupils aged 11-17 and five groups of medical students.

Summary of results: Quantitative analysis revealed certain attributes to be universally perceived as necessary for success in medical education. There were, however, differences between groups and between pupils and medical students. Observational data provides further insight into negative preconceptions, oppositional identities and school cultures, and how they can be challenged. We provide a model for other programmes to utilise and adapt.

Conclusions: By undertaking this research during our WP sessions we can ensure our activities are needs-led and evidence-based.

Take-home messages: Q sort is a successful way to stimulate discussion, challenge preconceptions and direct the right information and support to young people underrepresented in medicine.

9AA/4
Admission criteria and diversity in medical school

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Background: The underrepresentation of students from lower socioeconomic backgrounds in medical education is an important social issue. There is currently little evidence about whether changes in admission strategy could increase the diversity of medical students. Denmark introduced an "attribute-based" admission track to make it easier for students, who may not be eligible for admission through the "grade-based" track, to be admitted on the basis of attributes other than academic performance. The aim of this research was to examine whether there were significant differences in the social composition of students admitted via the two tracks between the years 2002-2007.

Summary of work: This prospective cohort study included 1074 Danish medical students admitted between the years 2002-2007 to the University of Southern Denmark (USD) medical school. Of these, 454 were admitted by grade-based selection and 620 were selected on attributes other than grades. To explore the social mix of the two tracks, we obtained information on social indices associated with educational attainment in Denmark (ethnic origin, father's education, mother's education, parenthood, parents live together, parent on benefit).

Summary of results: Selection strategy (grade-based or attribute-based) had no statistically significant effect on the social diversity of medical students.

Conclusions: The choice of admission criteria may be less important to widening access and increased social diversity in a medical school. Attracting a sufficiently diverse applicant pool could be a better diversity strategy.

Take-home messages: More studies examining when diversity is most severely restricted (upon application, during selection or in medical school) would be valuable to better understand diversity in medical education.

9AA/5
Introduction of an interview practice program for specialist training admission in obstetrics and gynaecology

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Background: In Australia the selection for specialty training positions is increasingly competitive. Work practices have dictated the need for a fair and transparent process. This involves references, Curriculum Vitae and interview. The last of these has been the least considered but is paradoxically the most discriminative. Following poor performance of local Obstetrics and Gynaecology candidates in this area of assessment in 2011, a program of interview training was instigated at Royal North Shore Hospital in 2012.

Summary of work: The interview practice program comprised three formal sessions: presentations on non-verbal communication and how to approach answering questions; brainstorming possible questions which may be asked at the interview; public individual mock interviews, where the trainees were asked several questions by a panel of consultants in front of the other trainees. After conclusion of the selection process, candidates were surveyed regarding the interview training and its impact on them.

Summary of results: Ten trainees attended the program for at least one session; seven responded to the survey. All ten trainees were successful in their specialty selection, including three who were unsuccessful the

previous year. The mock interview session was considered the most useful.

Conclusions: All of the trainees were successful in specialty selection. Interview skills are a vital aspect in the acquisition of speciality training positions and employment. Such skills are not a routine part of medical training but can be successfully taught to an interested cohort.

Take-home messages: Interview skills are vital aspect in acquisition of specialty training positions and can be successfully taught.

9AA/6
Development a fair and transparent admissions system for postgraduate level of medical education in Iran

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Background: Although colleges and universities have long cherished their right to choose the students they will teach, the manner in which they make those choices is under intense scrutiny during the first decade of the 21st century. (1) Students, parents, legislators, litigators, and judges have challenged both particular admissions decisions and the process by which those decisions were made by colleges, graduate, and professional schools. (2). A fair and transparent admissions system is essential for all applicants.

Summary of work: This preliminary study was conducted to design and implement a fair admission process in postgraduate level of medical education in Iran. The proposed admission system was designed in different stages.

Summary of results: The proposed admission process intended to bring some clarity to the admissions debate, concerned with the following questions: How should postgraduate medical science students have been chosen? In this study the principles and processes that constitute a fair admissions process elucidated in designed model.

Conclusions: Considering the need for comparing different admission process strategies and developing national models, the results would help designers and providers of the postgraduate medical education admission process in decision making. Also, more studies should be performed to determine these programs' learning outcomes.

This study also provides some wider recommendations to produce a high quality admissions process and facilitate holistic assessment while minimizing any increase in the overall cost to the postgraduate medical education sector. Many of these recommendations will involve a range of partners in addition to universities and colleges.

9AA/7
Winning the golden ticket - can we predict successful selection into surgical training?

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Background: The exact shape of UK core surgical training (CST) remains controversial and in particular whether there should be a third year available (CT3). The aim of this study was to establish whether there are measurable factors that predict successful selection from CST after CT2 to ST3 in surgery in a single UK deanery.

Summary of work: Fifty-eight trainees appointed to CT1 in August 2010 were identified and their on-line portfolios assessed for 2 years with reference to the performance of; operations, workplace based assessments, audits, presentations, and scientific publications. Primary outcome measure was success at ST3 selection.

Summary of results: MRCS examination pass rate was 58.6%. Six trainees (13.3%) successfully progressed to ST3 (3 NTNs and 3 LATs); 16 left surgery (27.5%), 1 is undertaking research, and 36 remain in CST at CT2 or CT2+ level. Progression to ST3 was associated with higher median operative numbers (355 vs. 263, p=0.300), national presentations (median 2.5 vs. 1.0, p=0.01), international presentations (median 1.0 vs. 0, p=0.006), and scientific publications (median 2.5 vs. 0, p=0.009). The number of WBAs and audits did not influence selection. Binary logistic regression revealed the only factor to predict successful selection was trainees' publication record (HR 1.501, 95% CI 0.934 to 2.411, p=0.093).

Conclusions: Successful ST3 selection can in part be predicted and trainers and trainees alike should be aware of this as they progress through training. Arguably an additional experiential year at CT3 level could be beneficial to enhance attainment of such competencies.

Take-home messages: The only factor to influence ST3 selection was number of publications.

9AA/8

Comparative study exploring self-evaluation of perceived confidence levels between undergraduate and graduate entry students in 3rd year and 5th year at one London medical school

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Background: This short study is based upon the hypothesis that graduate students have a lower perceived confidence level compared with their counterpart undergraduates due to the shorter nature of the course.
Summary of work: A questionnaire for self-evaluation of perceived clinical competence was developed using a focus group to generate the tool. Following study outline consent procedures, undergraduate and graduate medical students were engaged in the study. 89 third year and 87 fifth year medical students completed the questionnaire.
Summary of results: Whilst in year 3, overall feeling of confidence starting their first ever clinical attachment was similar in undergraduates and graduates, by 5th year only 56.7% of undergraduates had positive perceptions of self-confidence starting their clinical attachment, compared to 96.3% of graduates. The graduate course is still fairly new and undergoing constant student-lead modification. When reflecting back on starting their first ever clinical attachment two years ago, 48.1% of 5th year graduate entry students remembered not feeling competent in their 3rd year. In comparison, of the current graduates who had just started their first ever clinical attachment, 66.6% did feel confident in starting. This could well reflect a change in teaching practice, since the course has been modified according to student feedback over the years.
Conclusions: This study shows that at this London medical school, graduates are not at a disadvantage when it comes to perceived clinical confidence levels.
Take-home messages: The graduate medicine course has the capacity to produce students whose perceived confidence is just as high, if not higher than undergraduates. Acting on student feedback is vital to constantly improve the course.

9AA/9

Graduate versus undergraduate medical students: who will be our future surgeons?

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A Nasim (University Hospitals NHS Trust, Department of Vascular Surgery, Leicester, United Kingdom)

Background: We hypothesize that increased enrolment of graduate students i.e. those with previous degrees alongside a power devolution into general practice reduces the interest in surgical careers amongst medical students
Summary of work: Undergraduate and graduate medical students reading the 4th year of an MBChB programme responded to a 25-item questionnaire delivered via Turning Point Technologies. Participants were asked if they were interested in surgery then ranked 7 items known to influence careers in surgery.
Summary of results: 86 (67.0%) fully completed datasets were returned, of those 36 (42.0%) were graduate medical students and 50 (58.0%) were undergraduate medical students. 18 (20.9%) were interested in surgery of which 8 were graduate students and 10 were undergraduate. 68 (79.1%) were not interested in surgery of which 28 were graduate students and 40 were undergraduate. Therefore as a cohort, 22.2% of the graduate students were interested in surgery compared to 20.0% of the undergraduate students. Both groups interested in surgery rated hands on technical skills and job satisfaction as their 1st and 2nd most influential factor. Interestingly, the 3rd most influential factor differed between the 2 groups- financial reward (16.0%) scored the highest for the undergraduates however for the graduates they scored undergraduate surgical exposure (15.0%) as their 3rd most influential factor.
Conclusions: This research demonstrates that there is a greater proportion of graduate students compared to undergraduate students interested in surgery. Furthermore, both groups demonstrated similar primary and secondary influential factors for careers in surgery however the difference observed in the 3rd influential factor could be related to graduate students having greater financial security. This information should be used by the medical community when supporting students considering pursing a surgical career.
Take-home messages: There are some fundamental differences between graduate and undergraduate medical students which need to be taken into account for future workplace planning.

9AA/10

A graduate entry programme in medicine and research at the VUmc School of Medical Sciences

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Rashmi Kusurkar (VUmc School of Medical Sciences, Institute for Education and Training, Amsterdam, Netherlands)

Background: A new graduate entry programme was launched at our institute in 2012 with a mission to educate research-oriented medical practitioners.
Summary of work: Students with a bachelor's degree in biomedical sciences were selected through a cognitive test, an assessment of past performance and Multiple Mini Interviews. A four year programme was designed consisting of a transition year dedicated to acquiring basic medical knowledge and skills, followed by a 3-year master programme consisting of clinical rotations, an extended research training period and specialised research courses. The students receive personal supervision by a mentor, work in the form of a student community and are given the opportunity to start a PhD training following their own research project, during their master programme.
Summary of results: Twenty one highly motivated students (out of 128 applicants) entered the programme. They are dedicated to investing the extra effort needed in the programme. At the end of their first year they have formed a tightly knit community, obtained good grades and will enter the master programme being involved in research.
Conclusions: The selection procedure enabled us to recruit highly motivated and qualified students. The preliminary results of the students enrolled in this programme are promising. Students perform well, acknowledge the support they feel being part of the student community, and show commitment to perform research.
Take-home messages: Setting up student communities and personal supervision is important in supporting these students in the intense effort they need to invest to become a clinician-researcher.

9AA/11

Is there a relationship between entrance exam and academic results during Italian students' three-year, pre-clinical undergraduate careers?

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Background: In Italy, entrance exams to state-run medical faculties are national and based on tests involving logic, general knowledge, chemistry, physics and mathematics, with no reference to previous grades. In some non-state medical schools the exam is local and based, besides the above-mentioned subjects, on aptitude tests and previous grades.
Summary of work: In 2008, 273 students took the national test at Rome's Sapienza University, the day before that administered by the Rome branch of the private Catholic University of Sacred Heart. 195 students (group A) passed the national exam at the Sapienza while they were rejected by the Catholic institution; 78 students (group B) who passed both exams enrolled at Sapienza. The data for these students, the percentage of prescribed exams taken and average grades for the three pre-clinical years (2008-2009; 2009-2010; 2010-2011) have been analysed.
Summary of results: The A-group took 11,3±1,9 of the prescribed exams (13), the B-group 11,1±2,1. The A-group obtained average grades (max 30/30 – min 18/30) of 27,2±1,8, the B-group 27,9±2,4. The number for exams taken show no significant differences (P=0,446) between the two groups although the B-group obtained slightly better, though statistically non-significant grades (P=0,072).
Conclusions: The students who passed both exams obtained statistically non-significant, slightly better grades than those who took the national test only. Differences in results concerning the clinical phase will be examined in the future.
Take-home messages: Entrance exams of different kinds do not seem to impact significantly on the academic results of medical students during their three-year pre-clinical careers.

9AA/12

Improvement in perception of self-competencies of the clinical performance of students after implementation of graduate medical education

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Background: This survey was done to evaluate whether or not students' self-competency on the clinical performance is improved after implementation of graduate medical school (GMS) system from undergraduate medical school (UMS) system.
Summary of work: A serial survey of senior medical students (70 students of UMS and 111 students of GMS) at a medical school in Korea was conducted in 2008

(students of UMS) and 2012 (students of GMS). This medical school formerly had UMS system (2 + 4 years, total 6 year) until 2008, then the school system was changed into GMS (4 + 4 years, total 8 year) since 2009. In the GMS system intensified clinical clerkship and clinical performance assessment was newly introduced. The data were gathered using 1-5 point Likert scale questionnaires about self-competencies with regard to clinical performance for 47 clinical presentations.

Summary of results: Students of GMS had higher self-assessments of competency on the clinical performance in 45 clinical presentations. Average score of self-competencies were 3.33 points in students of GMS and 2.87 points in students of UMS. The variables that influenced self-competency were intensified clinical clerkship and introduction of clinical performance assessment.

Conclusions: Implementation of the GMS system improved the self-competencies on the clinical performance.

Take-home messages: Intensified clinical clerkship and assessment of clinical performance is essential to improving student's self-competencies.

9AA/13

The UK medical school application: Examining the perceptions of prospective students surrounding work experience in relation to socio-economic background

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Background: Work experience is expected from prospective medical students. We examined if students whose parents work within medical professions have an advantage in seeking experience and if this creates a perceived bias towards the higher social classes.

Summary of work: The SAMPLE Medicine project allowed students from a variety of socio-economic backgrounds to explain their perceptions of the medical school application. Through questionnaires, we asked participants to comment on their difficulties seeking experience and explore their perceptions regarding bias in the application process.

Summary of results: (1) Regarding family: a. 38% had at least 1 parent who was a Doctor (Group A). b. 24% had at least 1 parent who was a medical professional other than Doctors (Group B) c. 38% did not have parents within medical professions (Group C). (2) 97% stated finding experience was "moderate" or "difficult". (3) 67% of Group A admitted to parental assistance in organising experience, whereas 44% in Group B and 0% in Group C claimed to have received help respectively. (4) 80% of Group C believed the application process is biased towards higher socio-economic backgrounds, compared to only 7% of Group A.

Conclusions: Work experience is difficult to organise but crucial for the application process. The results suggest it is easier to arrange work experience when family members work in medical professions. This could contribute to the perception that the application process is biased towards higher socio-economic backgrounds.

Take-home messages: Medical Schools should encourage fair access to work experience through projects such as SAMPLE medicine.

9BB Posters: The Curriculum/Social Responsibility/Patient Safety
Location: South Hall, PCC

9BB/1
Rethinking the wheel: A clinical presentation-oriented Internal Medicine curriculum for South Africa

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Background: An increased emphasis on primary health care in South Africa, a political mandate to align medical education with socio-epidemiologic need, and the introduction of community based education (CBE) at the University of the Free State (UFS) has necessitated review of the undergraduate curriculum in Internal Medicine. A clinical presentation-oriented model is being developed.
Summary of work: From March 2012 to January 2013, eleven expert workgroups, each consisting of at least the unit head and one consultant of the UFS Department of Internal Medicine subspecialties, were asked to compile a consensus list of the most common primary clinical presentations for patients presenting to their subspecialty, as well as the most common and important differential diagnoses for these presentations. The general medicine workgroup reviewed these lists for completeness and applicability to the South African primary health care setting.
Summary of results: A total of 111 common clinical presentations were identified. The most frequently listed were tiredness/fatigue (50%), shortness of breath (50%), fever (50%), weight loss (50%) and chest pain (40%). For all presentations a total of 670 differential diagnoses were generated (clinical presentations/differential diagnoses): cardiology (10/48), endocrinology (28/137), gastroenterology (14/78), geriatrics (8/30), haematology (14/38), infectious diseases (19/109), nephrology (11/34), neurology (13/63), pulmonology (16/71) and rheumatology (12/62).
Conclusions: A departmental consensus list of common clinical presentations and their respective differential diagnoses was compiled.
Take-home messages: This study represents the first step towards developing an undergraduate clinical presentation-oriented Internal Medicine curriculum that is tailor-made for South Africa's health milieu.

9BB/2
Critical analysis of the Endocrine and Diabetes Module of the Core Medical Training curriculum in UK

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(Presenter: **Christopher Ashton**, East Sussex Healthcare Trust, Rotation, Conquest Hospital, Little Ridge Avenue, St Leonards-On-Sea TN37 7RD, United Kingdom)

Background: The General Medical Council has defined the curriculum as a, 'Statement of the intended aims and objectives, content, experiences, outcome and processes of a programme, including a description of the structure and expected methods of learning, teaching, feedback and supervision.'
Summary of work: We analysed the existing Endocrine and Diabetes module of the core medical training to see whether it satisfies the stated requirements of a curriculum.
Summary of results: We found that the module had the desired elements of learner centred approach delivered through e portfolio, competency based well-laid out syllabus, link to suggested tools for assessments, but some aspects remain unachieved like plans for adequate staffing, promotion of reflective and autonomous thinking, tools for learning form practice, clinic letters, audit projects and critical incident review. Specific to diabetes, in-patient diabetes care, community diabetes and leadership training in diabetes service organisation were not adequately represented in the curriculum. Professionalism and virtuous practice of medicine were not explicitly mentioned in the curriculum and no suggestions were mentioned as to how to assess them. Use of online resources was not detailed. We recommend revising the existing curricula to include these elements.
Conclusions: We recommend revising the current curriculum to include the elements unachieved in the results and to integrate a partnership approach between teachers and learners.
Take-home messages: The existing curriculum does satisfy the stated requirements of a curriculum however to maximise the teaching of the trainees certain aspects can be improved and we have made some recommendations.

9BB/3
Characterizing a Portuguese medical school hidden curriculum

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Luís Manuel Taborda Barata (Faculdade de Ciências da Saúde - Universidade da Beira Interior, Medicine, Covilhã, Portugal)

Background: Patient-centered care is a fundamental clinical method contributing towards the quality of healthcare. However, studies have shown a decline in patient-centered behaviours/attitudes in medical students. The influence of a hidden curriculum may underlie these results. The C3 Instrument (questionnaire to characterize the patient-centeredness of a medical

school hidden curriculum), was previously developed and validated in English and then adapted to the Portuguese language.

Summary of work: This study aimed to characterize the patient-centeredness of the hidden curriculum in the Faculty of Health Science – University of Beira Interior (FCS-UBI) (Covilhã-Portugal) using the C3 Instrument. It was applied to medical students from the last 2 years. Responses were analysed by applying descriptive and inferential tests.

Summary of results: The C3 Instrument was completed by 145 students, with a response rate of 94%. The FCS-UBI students' C3 results were similar to the ones found in USA medical schools.

Conclusions: FCS-UBI medical students seem to be exposed to a similar hidden curriculum as the ones found in USA medical schools. A more detailed analysis highlighted some points where intervention might modify or decrease the negative impact of the hidden curriculum upon human and professional development of medical students.

Take-home messages: The hidden curriculum might be the most powerful force shaping medical students attitudes and behaviours. Knowing the hidden curriculum of a medical school is crucial towards its development. Interventions might be needed to modify/decrease the negative impact of the hidden curriculum upon human and professional development of FCS-UBI medical students.

9BB/4
Stakeholders' perspectives about Institutional culture and curriculum reform a decade after the Brazilian Curricular Guidelines for the undergraduate medical course

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Background: The Brazilian Guidelines were published in 2001. The goal was to stimulate adjustment of the curriculum more adequately to prepare competent and reflective doctors, able to answer to the health needs of the society, strengthening the Brazilian Unified Health System.

Summary of work: An exploratory qualitative research was done to know the advances made and the challenges faced by the medical schools during curriculum change. We performed by phone semi-structured interviews with one student, one professor and the Dean of eighteen public and private medical schools randomly selected. Thematic content analysis was used. The study was approved by the Ethics Board (Brazil Platform, CAAE:01376712.7.0000.5404).

Summary of results: Changes occurred in all the schools. However, the changes' amplitude varied according to

the institution's culture, leadership, and adhesion to funding support through governmental project. We identified three school cultures: traditional, adaptable and highly adaptable. The participants of traditional schools reported few changes and high faculty resistance. Those from adaptable schools reported that the process of change was easier. The participants of highly adaptable schools mentioned that the changes began even before 2001 and highlighted a "strong" leadership, and that the stakeholders like to try new methods and are not afraid of changes.

Conclusions: The resistance of traditional schools' stakeholders may be caused by their difficulty in handling the unpredictability and uncertainty inherent to changes. It is easy to change the curriculum in adaptable schools. Perhaps, the investment in building an adaptive culture in the traditional institutions could facilitate the changes.

Take-home messages: Building an adaptive culture in the school can be a key to make changes happen.

9BB/5
Professional growth and nursing education at ISMETT

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Background: Since 2004 ISMETT's nursing education group has had a training program for newly hired nurses. ISMETT (The Mediterranean Institute for Transplantation and Advanced Specialized Therapies), founded in 1998, is an 80-bed hospital in Palermo, Italy.

Summary of work: The nursing education group consists of six nurse educators, each assigned to a specific operational unit. Our training schedule includes four weeks of theoretical training and six courses on emergency clinical simulation, punctuated by observation within the operating units, and followed by a one-month period of mentoring with a nurse preceptor. The main contents of training include the electronic medical record, lectures on ECG, hemodynamics, infection control, medication, unit-specific procedures, and basic and advanced management of emergencies.

Summary of results: From 2004 to 2012, we trained 369 nurses, and assessed the results from both a theoretical and practical standpoint, using multiple-choice tests, practical debriefing in a simulation environment, and skill evaluation checklists.

Conclusions: At present we have a form of structured training, with attention to content and training objectives, and punctuated by constant assessments in the course of learning, designed to optimize timing and results of educational intervention. The achievement of skills is encouraged by an annual assessment that assigns to the nurses a different skill level (basic-

intermediate-advanced), closely related to the professional growth of each nurse.

Take-home messages: Professional growth related to nursing education must always be based on the rigor of well-structured training and, at the same time, openness to technological innovations and new training needs.

9BB/6
A comparison of the performance of students from life sciences vs medicine and its allied specialties in an objective test on regenerative medicine: the lessons learnt for curriculum development

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Background: Regenerative Medicine (RM) is a growing paradigm in biology in which the constant interaction and communication between basic scientists and clinicians is indispensable. In this study we have analysed the performance of students studying under-graduate and post-graduate courses in the fields of medical and its allied specialties.

Summary of work: We have analysed the performance in terms of scores in an objective multiple choice quiz of students studying graduate and post-graduate courses in the above mentioned fields in a quiz on stem cells and RM.

Summary of results: The results revealed that the average scores of students studying medicine and its allied specialties were high compared to students studying life science courses. A two sample t-test revealed statistical significance in the scores (P value = 0.04; P <0.05) between students of these two categories. Students from medicine and its allied specialties won the quiz three times and even students studying the exclusive RM course won the quiz twice. Students from the field of life sciences did not win the quiz even once.

Conclusions: Exposure and information gained on concepts in Regenerative Medicine is less among students studying life science courses in higher education compared to students studying courses in medicine and other allied specialties.

Take-home messages: This upcoming field of medicine should be included in the curriculum of the science students too.

9BB/7
The influence of preceptor power style on learner empowerment: a measure of the hidden curriculum in clinical learning environments

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Background: Clinical learning occurs in environments wherein students may compromise their values in order to be perceived positively by supervisors. Preceptor influence represents a type of social power, an important determinant of an individual's sense of personal empowerment in any environment.

Summary of work: Early (n = 77) and late (n =79) stage clerks from six disciplines completed modified Teacher Power Use (TPUS) and Learner Empowerment (LEM) scales for their primary preceptor- identified simply as either staff physician or resident- and their personal senses of empowerment, respectively. TPUS and LEM outcomes were subjected to correlational analyses as well as independent 2 cohort by 2 preceptor by 6 discipline analyses of variance.

Summary of results: Learner perception of empowerment was correlated positively (r = .66, p < .05) with pro-social preceptor power use and negatively (r = -.32, p < .05) with coercive power use. Furthermore, coercive power use was perceived more strongly by students with a resident as the primary supervisor (F (4, 572) = 4.7, p < .05).

Conclusions: Preceptor power use impacts learners' sense of empowerment in clinical learning environments. Rotations where residents provide the majority of clerk supervision are more likely to subject learners to coercive power environments, which may in turn contribute negatively to their socialization into the profession.

Take-home messages: This study highlights the relationship between power use and perception of empowerment and uses the hidden curriculum framework to discuss the way cultural and/or organizational influences can potentially impact learners' values and professional behaviour.

9BB/8
Conceptions of teachers from a medical school of a Federal University in Brazil about the relationship between medical work, medical education and social demands

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Background: The curriculum guidelines for Brazilian medical courses provided changes that guide for the training of generalist doctors with a critical and humanist profile. Although curricular change in medical school of the Federal University of Alagoas started in 2006, we still can observe dissatisfaction from teachers with a curriculum oriented towards training of generalists doctors with emphasis on primary and secondary levels of health care.

Summary of work: This paper aims to observe how medical teachers from the Federal University of Alagoas

perceive and articulate concepts related to medical work, medical education and social demands. This is a qualitative study of content analysis from responses stimulated by standardized questions, which were recorded and later transcribed. We interviewed 23 teachers in a sample of convenience, to the point of saturation.

Summary of results: 100% of teachers responded that medical work does not meet current social demands, pointing out deficiencies found in primary care. 50% said that medical education is oriented towards current requirements for medical work, emphasizing the curriculum´s goal to train generalists focused on the need of the population, despite the fact that the market leads doctors for speciality. The remaining 50% responded negatively to the same question, saying that there is still a gap between theory and practice and that medical education should not only be focused on primary care.

Conclusions: Teachers consider that medical work is undervalued and in disagreement with social demands; also they consider that the job market competes and supersedes the current medical education oriented towards primary and secondary care.

9BB/9
Societal commitment, competitiveness and public health system: views and perceptions of the Chilean medical students and graduates

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Victor Acuña (Consultant School of Medicine, University of Chile, Santiago, Chile)
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Background: 180 years since its foundation, during 2013 the School of Medicine of University of Chile, pursuing social accountability with academic excellence, is changing its curriculum and is selecting and supporting socially disadvantaged medical students. This qualitative study investigated medical interns' and graduates' self-image, societal commitment and personal aspirations concerning their professional development, as a baseline providing inputs for these meaningful changes.

Summary of work: During 2012 medical interns and five year graduates participated in a qualitative study using "grounded theory" method, through 18 in-depth interviews and 2 focus groups. The first part of this study was done with first and fourth year medical students during 2011.

Summary of results: In spite of the ideals for social commitment that drive the preference for our Medical School, students and graduates feel a loss of social engagement in their medical practice. Related to the desire to become specialists instead of general practitioners, with individual gain over social impact,

they strengthen competitiveness as driving their behavior. On their view, this is also a result of the conditions of the public health system in Chile.

Conclusions: Competitiveness during the career and the lack of strong public policies encouraging social commitment of medical doctors are seen as obstacles to fulfilling social accountability, with the loss of social engagement in the medical practice.

Take-home messages: The School of Medicine has a challenge for the new curriculum but also has to strengthen partnership with stakeholders (public policy makers) as a socially accountable medical school.

9BB/10
Aligning Medical Education with the Needs of Health Challenges

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Fundhy Prihatanto (Faculty of Medicine, Medical Education, Surabaya, Indonesia)

Background: Based on national demand, the goal of Indonesian Medical Education is to produce primary health care physicians. Competencies requirements that should be achieved by the graduates are decided respecting the community healthcare needs. Considering factual problems and the health challenges, in the year 2005 the curriculum committee appreciated the need of updating the curriculum with additional content concerning emerging and re-emerging disease and mass disaster, as primary care physicians will play a role as healthcare providers and leaders of healthcare teams in meeting these potential healthcare challenges.

Summary of work: A learning strategy was arranged to facilitate the students obtaining a theoretical base and professional skills. In the early semester the theoretical base is discussed through interactive lectures facilitated by experts of medical science, communication and leadership, followed by problem based small group discussion, doing a community survey to face the actual problems or field training in a mass disaster block. In the clinical stage they stay one month in the primary healthcare center to practice medical care, leadership and teamwork.

Summary of results: There are increasing numbers of student research projects that relate to emerging and re-emerging disease, and likewise the number of students that joined the social program for special health population or enrolled as volunteers in a medical team for disaster.

Conclusions: Medical education should be designed to meet health needs. As predicted, currently re-emerging disease and natural disaster become a prominent health problem.

Take-home messages: Regularly updating the curriculum is necessary to make medical education responsive and relevant to the health system.

9BB/11
Philosophy, science and quality of planning Applied Medical Curriculum

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Background: Despite hard work, leaders insist on making their own bureaucratic decision without philosophical and scientific bases. Meanwhile, there was a huge debate between health care and education leaders on how to assure quality and theory-practice balance.
Summary of work: This work focused on investigation of the relationship between quality and the most common philosophies and theories that were applied or appropriate to be applied for nursing and applied medical education in United Kingdom, United States and Saudi Arabia. It used a creative integrated research model derived from the historical educational development research with documentary analysis.
Summary of results: This study begins by deliberating on the problems of the Saudi Arabian Nursing and Applied Medical Education and Practice, mainly the debate between the Saudi nursing education and nursing service regarding the quality of the graduate nurse students and the dilemma of the gap between theory and practice. Reflection on experience throughout studying the MA (Ed) courses and theses suggested that "the Western philosophy and science of curriculum, teaching and learning may guide Saudi Arabia towards a factual way to overcome these considerable problems and to assure quality as well". After its investigation, compassion, the study focused on 25 philosophical and scientific worldwide used models.
Conclusions: After using 'the related Islamic Ethical bases with Poppers' notions of conjectures and refutations', to validate its results, the study endeavours to modify Michigan's philosophy into a philosophy of fourteen theories as a base for future developmental studies.
Take-home messages: To assure total quality of health, health care services and planning and development of nationally applied medical education and curriculum, we have to conduct more philosophical and scientific based research, starting by preparing the ground for quality, philosophy and scientific theories based teaching, learning and curriculum planning and development.

9BB/12
5th-year Medical Student Knowledge of Patient Safety

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Background: Background: Patient safety is the one of the major goals in healthcare. Srinagarind Hospital, Faculty of Medicine, Khon Kaen University is a pioneer in the integration of patient safety and risk management in the medical curriculum. In 2008 the Healthcare Accreditation Institute, Thailand, announced the Thai Patient Safety Goal using S I M P L E strategy which is Safe Surgery, Infection Control, Medication Safety, Patient Care Process, Line, Tube & Catheter, and Emergency Response respectively. The understanding of patient safety by using S I M P L E is very important for medical staff including medical students.
Summary of work: Objectives: 1) to study the understanding 5th year medical students have in patient safety following the S I M P L E strategy and 2) to study the degree of implementation of patient safety strategy in real-life practice. Method: Descriptive study by using S I M P L E questionnaire.
Summary of results: The highest area of understanding 5th year medical students had was in Medication Safety (77%) with Safe Surgery (62.83%). The lowest area of understanding 5th year medical students had was in Patient Care Process (50.28%). In actual practice Emergency Response was highest (88%) and Patient Care Process was second (81.85%). The lowest implementation was in Infection Control aspect (63.75%).
Conclusions: Fifth year medical students demonstrated the lowest understanding of patient safety following S I M P L E strategy in Emergency Response aspect but had lowest implementation in real-life practice in Infection Control aspect.

9BB/13
First Practical Evaluation of Patient Safety knowledge in Internal Medicine Clerkship in a Private School of Medicine (UNINOVE): evaluation using a Brazilian Validated Questionnaire

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Background: Patient Safety (PS) is considered an essential field during undergraduate medical education. Very little attention has been driven to incorporate educational strategies for acquisition, assessment and evaluation of knowledge retention of PS-competencies.
Summary of work: Before introducing a PS Program in clerkship of UNINOVE School of Medicine, we decided to evaluate the previous knowledge of the students. We used a recently validated questionnaire that focus on human error theories, incidents and adverse events epidemiology and disclosure (Daud-Gallotti et al; CLINICS 2011). At the end of 2012, we applied during an

OSCE, a scenario exclusively related to error disclosure (ED) and physician-patient relationship (PPR).
Summary of results: The students (n=118) presented an OSCE performance in the Patient Safety Station of 76.7±1,75%. Students' performance in ED was lower than in PPR issues, with respectively 68.59±2.11 and 84.81±1.91,(p<0.001). Only 49.57% of students apologize. Less than 53% recognized the facilitating situations for the error. As much as 45.3 assumed blaming attitudes. There was a significant correlation between the ED and PPR scores (R=0.55, p<0.001).
Conclusions: Students presented a high performance in PPR issues. However, insufficient performance was observed in error recognition and disclosure.
Take-home messages: Students had the opportunity to perform practical activities in wards, ambulatories and in the emergency setting and have high performance in the physician-patient relationship score as well as some previous knowledge of Patient Safety competencies. However, these Patient Safety contents need to be reinforced by a formal program, including discussion of real cases selected by the students.

9BB/14
Health Literacy in Patient Safety: a Medical Students' Project

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Background: Health literacy has become a common serious safety concern worldwide (Williams, et al. 1995). Studies from Saudi Arabia found that the population's level of awareness regarding common diseases was low (Aljoudi, et al. 2009). Furthermore, the methods used to deliver health related information are limited and lack appeal. Therefore, the aim of this project was to utilize novel and appealing media modalities such as radio stations and social media networks as portals to patient education and hence patient safety.
Summary of work: As part of the Patient Safety Module, a mandatory course for final year medical students at King Abdulaziz University, we brainstormed ideas for multiple radio advertisement sketches of which the best four were chosen to be executed. Colorectal cancer, breast cancer, and hypertension were addressed. The advertisements were designed to consist of two parts, an attractive scenario, followed by two to three sentences of simple narration about the desired disease.

The ads would then conclude with our motto (Awareness: Your Right, Our Duty) and reference to a Facebook page for further detailed reading. Afterwards, we prepared a budget proposal, gained sponsorship for producing the ads, and are currently working on the airing process. On the long run, we mainly aim for the project to be adopted nationally in order to ensure continuity and expansion, therefore, reflecting positively on the overall health literacy and on the quality of patient safety.
Conclusions: Small curriculum projects can blossom into altruistic services to the community with adequate nurturing.

9BB/15
Mapping the Canadian Patient Safety Competencies to residency rotational objectives: the process, strengths and gaps

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Jonathan Gilleland (McMaster University, Pediatrics, Hamilton, Canada)
Pierrette Leonard (Canadian Patient Safety Institute, Canadian Patient Safety Institute, Ottawa, Canada)
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Background: The Canadian Patient Safety Institute (CPSI) Safety Competencies (SC) are addressed in varying degrees within pediatric residency programs to create physicians who practice in a culture of patient safety. Through mapping to the CPSI SC, the strengths and gaps of the program's safety curriculum could be identified.
Summary of work: Pediatric resident evaluation criteria for rotations and CanMEDS courses were mapped to the SC using software developed by CPSI. Educational sessions were not included as they do not include evaluation criteria.
Summary of results: 20 rotations were mapped over two days. Within the program there was strong emphasis on SC related to communication with team members, patient advocacy, and team collaboration. Gaps included patient safety core theories, defining and reporting adverse events and identifying safeguards in prescription writing. Mapping the evaluation criteria highlighted areas within the CPSI SC that are not assessed within our residency program; however, some of the gaps identified are taught in the educational sessions, but not specifically evaluated.
Conclusions: Through mapping to the CPSI SC, strengths and gaps of resident assessment were identified. Inclusion of content taught in educational sessions is needed to comprehensively assess the completeness of the residency program safety curriculum. This mapping process may be helpful in analyzing residency program curriculum and assessment for other objectives, such as CanMEDS.

Take-home messages: Mapping to the CPSI safety competencies can help identify strengths and gaps in residency safety curriculum and evaluation.

9BB/16

Patient Safety: Knowledge and Attitude in Undergraduate Medical Students

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LR Collado Yurrita (Complutense University (UCM), Medicine, Madrid, Spain)
JA de Pedro Moro (Medicine University (USAL), Surgery, Madrid, Spain)

Background: Patient safety has emerged as an essential health care discipline and needs to be directed at future generations of health care practitioners. New educational programs for medical students about patient safety are required. The study aimed to assess medical students through the development of a questionnaire designed to measure the knowledge, attitudes and feelings relating to patient safety.

Summary of work: A questionnaire was conducted on 1,2,5,6, Year medical students of Spanish Universities Madrid (UCM), Salamanca (USAL). The questionnaire included 33 patient safety items grouped in four sections: 1. Knowledge 2. Feelings about making errors. 3. Attitudes to patient safety 4. Safety in the workplace. Responses were graded (0=strongly disagree, 1=disagree, 2=neutral, 3=agree, 4= strongly agree). t-test was applied for differences in the mean scores between the two cohorts of Year 1,2 (cohort 1) and 5,6 Year (cohort 2) medical students.

Summary of results: The questionnaire was conducted in October-December of 2012, involving 489 (Cohort 1) and 363 (cohort 2) medical students. There were significant differences in mean scores between the two cohorts in all sections: Knowledge of error and patient safety, $P < 0.001$. Section 2: First year students scored highest on average on the scale Feelings about making errors (cohort 1: mean = 3.9, cohort 2 mean = 3.1). Attitudes to patient safety: 86% of the students in two cohorts responded in a positive way (mean 3.2).

Conclusions: Patient Safety Questionnaire is a valid instrument to assess the knowledge, feelings and attitudes of medical students to patient safety and medical error.

9CC Posters: Assessment: Clinical and Work Based

Location: South Hall, PCC

9CC/1
Does medical students' clinical performance affect their actual performance in medical internship?

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Background: This study examined how medical students' clinical performance affected their actual performance as doctors.
Summary of work: The study subjects were 90 interns being trained at Chonnam National University Hospital, South Korea, 2012. We analyzed the relationship between interns' performance during 1-year medical internship and their clinical performance by the Clinical Performance Examination (CPX) and Objective Structured Clinical Examination (OSCE) in 4th-year of medical school. Interns' performance was evaluated by the faculties of each department periodically. CPX consisted of history taking, physical examination, patient education and counselling, and patient-physician interactions. OSCE was the test for technical skills on simulated patients or manikins.
Summary of results: Intern performance was significantly positively correlated with student performance; clinical skills, patient-physician interactions, and technical skills. After stratifying intern performance scores into quartiles, patient-physician interaction scores in the top quartiles of intern performance were significantly higher than in the bottom two quartiles of intern performance.
Conclusions: To foster competent doctors, medical students should practice developing good clinical performance through patient encounters or simulated manikins.
Take-home messages: Students' performance was related to their clinical performance as doctors.

9CC/2
Validation of a clinical examination for Internationally Educated Nurses (IENs)

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Background: This pilot tested the feasibility of an OSCE to screen IENs for eligibility to write the Canadian Registered Nursing Examination (CRNE) by validating the scores generated.
Summary of work: 72 participants, 34 IENs and 2 controls (23 RNs, 17 students) were rated by 50 examiners in a 12 station OSCE (4 tracks am / pm).
Summary of results: Valid cases were developed by content experts conforming to an Entry-to-Practice competency blueprint. Trained examiners rated the performance of items highly, pre and post OSCE, with tools validating content and competency scoring schemes. Validation: OSCE station and total test score psychometrics were acceptable. Total test score α-reliability was 0.904, which is higher than values reported with similar tests. Test results discriminated performance between and within three groups of candidates, IEN vs. 2 controls (construct validity). There were no significant track and/or session effects.
Conclusions: The test performed exceptionally well in terms of the psychometric quality of results, and its ability to differentiate between and within the candidates with three levels of nursing training with a large enough participant number.
Take-home messages: This clinical examination is intended to be offered to IEN candidates in lieu of traditional credential screening. The pilot design incorporated an understanding of parameters for the licensing exam and the appropriate measures to validate performance assessment. The results of the pilot validation study provide reasonable evidence of the feasibility of this test for screening IENs for eligibility for the CRNE.

9CC/3
Piloting DOPS for dental education in India

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Background: Dentistry is a procedure-intensive education yet there are very few opportunities for the students to be observed in a formal way and be provided developmental feedback based on that observation.
Summary of work: Direct observation of procedural skills (DOPS) was piloted in a dental school in north India in the specialty of Periodontia for undergraduates. The faculty were oriented to the concept and use of this modality during a one hour session, which included a video demonstration. The generic DOPS recording format was used for periodontal charting and status and scaling.
Summary of results: A total of 42 procedures were observed by 4 faculty members. Immediate feedback was provided to the students regarding the procedure and how to overcome shortcomings if any. Faculty found this mode feasible and non-intrusive in their clinical and teaching schedule. Students expressed happiness and acceptance of this modality and wanted it to be extended to other areas as well.
Conclusions: DOPS can be incorporated in the training assessment of UG dental students and seems to have a good acceptability.

Take-home messages: DOPS should be implemented by dental educators in India. Faculty training will improve utility and acceptance.

9CC/4
Establishing the DOPS Platform in Procedural Skills Assessment for Medical Technologist Core Competence Training

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Bih-Er Wang (Linkou Chang Gung Memorial Hospital, Laboratory Medicine, Taoyuan, Taiwan)
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Background: DOPS is a new method of competence assessment for Medical Technologists (MT) in Taiwan. This study aims to evaluate a newly-created DOPS system for competence assessment for MT.
Summary of work: 23 structural DOPS forms were created for core competence assessment in clinical chemistry, hematology and microscopy for MT. The three main areas of assessment were knowledge, clinical skills and attitude. A 6-score scale was used for rating and scoring criteria are defined. The reliability of DOPS was validated and faculty training achievement was evaluated. 197 DOPS ratings have been collected since 2012.
Summary of results: The reliability of Cronbach's alpha was acceptable (higher than 0.7) for all DOPS forms. The Kendall's W test for inter-rater reliability was higher than 0.7 in 16 DOPS and between 0.4 to 0.7 in 7 DOPS during the first validation. Their values all increased to 0.7 after raters came to a consensus. The average rating score was 4.1 for new trainees' evaluation. MT competence was evaluated more effectively with DOPS compared to using traditional assessment for training achievement.
Conclusions: An objective and standardized structural DOPS assessment was established for MT for the first time in Taiwan. We validated its key features and conducted core competence assessment for MT trainee using DOPS and verified it to be effective.
Take-home messages: Using structural DOPS for workplace-based assessment proved to be valuable for training quality improvement. Performance evaluation of knowledge, clinical skills and attitude can be achieved more objectively and reliably for MT.

9CC/5
Alignment of learning goals with learners' educational needs resulting from Mini Clinical Evaluation Exercises (Mini-CEXs)

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Background: Learning goals (LGs) developed during Mini-Clinical Evaluation Exercises (Mini-CEXs) should be aligned with learners' educational needs (ENs).
Summary of work: In 2011, a compulsory number of Mini-CEXs were performed with 4th year students of the University of Bern during each of their clinical clerkships. Learners' ENs were operationalized as a relative minimum of performance ratings regarding the six Mini-CEX domains (e.g. history taking, professionalism, counselling). LGs were classified with respect to their specificity and the Mini-CEX domains. Content and frequency of ENs and LGs were compared descriptively.
Summary of results: 1783 Mini-CEX were completed by 165 students. In 1167 (65%) of the assessments, both trainers and students detected one or more ENs. 'Clinical reasoning' (n=271 assessments [23%]), 'physical examination' (n=230 [20%]) and 'organisation/efficiency' (n=229 [20%]) were most often regarded as a relative minimum by both trainers and students. In 314 (18%) of the assessments, 'moderately specific' or 'specific' LGs were recorded. Most of these related to 'physical examination' (n=170 assessments [54%]) and/or 'history taking' (n=82 [26%]).
Conclusions: 'Moderately specific' or 'specific' LGs were recorded in only about a fifth of the assessments and only partly covered the Mini-CEX domains most often regarded as a learner's deficit.
Take-home messages: To further increase the utility of formative workplace based assessment, instruction of students and trainers should emphasize the recording of specific LGs in alignment with ENs.

9CC/6
Evaluation of medical students admitted in Obstetrics and Gynecology using the Mini-CEX. Perception of Feedback

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Background: The medical internship is characterized by 80% of the workload facing the patient, and from 2011 the Mini-CEX was introduced with the objective of assessing the performance of student activities in the area of Gynecology and Obstetrics.
Summary of work: All students were informed that for 8 weeks they should accomplish three (first year) or four (second year) Mini-CEX with evaluators and different scenarios. A group of 20 tutors were trained to apply Mini CEX. At the end of the evaluation preceptors provided feedback to the students and the students answered a survey assessing their perceived participation in this process.
Summary of results: During the study period 177 students were evaluated. Twenty preceptors conducted 626 Mini-CEX (mean 31/assessor). Students had 78.9% (494) of their evaluations classified as above expectations and 20.6% (129) reached the expectation. The questionnaire using a Likert scale was answered by 102 students. 77.4% agreed that the Mini-CEX contributed to its formation and the main positive point highlighted was the fact that they are evaluated in a real practical situation (70.6%). However, only 58.8% said that the feedback contributed to training compatible with their self-assessment (55.9%). This was the main criticism of students: feedback was examiner dependent, non-standardized and often inconsistent with their self-assessment. When asked about the continuity of Mini-CEX, 70.6% would like to continue to be evaluated in the 6th grade and 72.4% also in residency.
Conclusions: This study pointed to the need for faculty development to provide adequate feedback.
Take-home messages: The feedback is critical for formative assessment and when properly applied is well accepted and contributes to the training of students.

9CC/7
Comparison of the performance of post-graduate year-one residents from different departments by global rating and the mini-CEX in the emergency medicine department at a medical center in Taiwan

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Background: This study aimed to evaluate the differences in clinical performance among PGY1 students from various specialty backgrounds in ED and also to evaluate the correlation between the results of different evaluation systems for these students.
Summary of work: A total of 179 PGY1 residents received 1 month ED training and were divided into three groups according to their specialty background. Group A consisted of Radiology, Pathology, and Nuclear Medicine PGY1 which were not clinically orientated; Group B consisted of Internal Medicine, Surgical, OB/GYN, Pediatrics and ED PGY1 which were very clinically orientated specialties; Group C consisted of Ophthalmology, ENT, Dermatology and Psychiatry specialty PGY1. We used mini-clinical evaluation exercise (mini-CEX) and global rating method to evaluate their clinical performance and to analyze if these two evaluation scoring methods correlated to each other.
Summary of results: By global rating, Group A had the highest score while Group C was the lowest. The global rating score for Group A to Group C were 87.4±6.9, 86.5±5.4 and 86.0±4.7 respectively. However, by using mini-CEX method, the score in Group A was the lowest. When compared with Group B, Group A were significantly lower in the Physical examination, clinical skill and clinical judgments part of Mini-CEX evaluation. When compared to Group C, Group A were significantly lower in the clinical skill part of Mini-CEX evaluation.
Conclusions: We found that using mini-CEX for evaluation is superior to global rating method. Mini-CEX has better discriminating ability than global rating in evaluating the trainee's performance and more suitable to use for clinical evaluation.
Take-home messages: Mini-CEX has better discriminating ability than global rating in evaluating the trainee's performance and is more suitable to use for clinical evaluation.

9CC/8
A Self-Assessment Tool To Evaluate The Medical Student's Development And Personal Growth Throughout his/her Career

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Background: The student traditionally develops a passive role in his training and a non-reflective practice. An educational program is required that encourages interest in personal growth and development. This

competency tends to be left out because it involves another kind of assessment not considered within the grade that is awarded to the student and therefore is left to him/her to handle. Studies on personal growth and development in general are not used to give feedback to the student so that he/she can become aware of his/her strengths and weaknesses.

Summary of work: Based on the ideal key points that have been associated with development and personal growth, a Likert type instrument was formulated to evaluate the following areas: self-esteem, self-awareness and emotional expression, commitment, creativity, resilience, self-criticism, positive outlook on life, security, confidence and assertiveness.

Summary of results: Once the questionnaire was tested, the instrument was structured in the following manner: a) the questionnaire of self-implementation. b) instructions to get the scores of each section and how to interpret the results. c) provide graphs of each area so the student can score their annual evolution throughout their career.

Conclusions: Its application at the beginning of the career and its annual follow-up allows students to know their progress and areas of weakness and advises them to seek guidance to help them improve.

Take-home messages: The student can count on a self-assessment tool in the area of personal growth and development. It promotes their academic performance throughout their studies and perhaps even beyond.

9CC/9
The Correlation of Acceptability Index based on medical teachers and borderline examinee of fourth-year medical students

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Background: Acceptability Index (AI) is calculated from estimation of cut-off score of borderline examinee. There may be variation to obtain the value and this raises the issue of reliability.

Summary of work: In academic year 2012, borderline examinees in each of 3 groups were invited to calculate AI from 100 MCQs during radiology rotation. We assessed their correlation with AI based on medical teachers' estimate. Additionally, difficulty indexes (DI) from item analysis were also considered. Minimal passing levels (MPL) were compared among the methods from medical teachers, borderline examinee and DI.

Summary of results: There were 19 borderline examinees out of 79 fourth-year medical students. The correlation coefficient (r) of AI from medical teachers with borderline examinees and DI in group 1, 2 and 3 were 0.31 and 0.32, 0.01 and 0.07, and 0.19 and 0.31, respectively, while r of AI from borderline students with DI values in all above groups were 0.60, 0.77 and 0.67 (p-value<0.001). MPL of group 1 from medical teachers, borderline examinees and DI were 45.1, 58.7 and 70.8. These values were 45.4, 71.1, 81.8 and 49.2, 80.6, 83.1 for group 2 and 3, respectively.

Conclusions: The correlation of AI from medical teachers with borderline examinees and DI were poor, while AI from borderline students were fairly good associations with DI. Those were relevant with MPL which was the lowest value from medical teachers and nearly the same value from borderline students and DI.

Take-home messages: All estimations from medical teachers have a trend of lower values than from real borderline medical students.

9CC/10
Using a Relative Ranking Scale to Enhance Feedback during Resident Assessments

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Background: The Relative Ranking Scale (RRS) asks learners to rank a defined set of skills relative to each other and cross-check this ranking with expert opinion. Learners are not asked to gauge their overall level of competency, but provide a rank order of their strengths and weaknesses. We studied whether the RRS 1) impacts quality and dynamic of feedback as compared to traditional evaluation forms 2) Impacts the creation and implementation of educational action plans.

Summary of work: Family practice residents and teachers at academic and community sites completed the RRS at regular evaluations in addition to their usual feedback forms. Focus groups were conducted to explore the experience of using the RRS. FG's were transcribed and analysed using the constant comparative method and thematic analysis.

Summary of results: The RRS changed the dynamic of the feedback interaction for both teachers and residents. The feedback encounter became a feedback conversation with much more bidirectionality than traditional evaluations. Residents felt their opinion was more welcomed and teachers felt they could deliver critical feedback more easily.

Conclusions: The focus of the feedback changed to 1) emphasize the identification of strengths and weaknesses and 2) to define learning priorities and develop common goals (considering both the residents' and teachers' agenda). The form did not seem to impact on development of an action plan to achieve these goals.

Take-home messages: A new type of feedback form increased amount and quality of feedback to residents. This feedback was learner centred but teacher driven.

9CC/11
Receiving Feedback in Near-Peer Teaching

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Background: Feedback plays an important role in developing the clinical teacher and its usefulness for this purpose is well documented. There is increasing emphasis on junior doctors developing teaching skills, however there is little work on how feedback is best utilised in near-peer environments. We assessed what components of feedback FY1s (Foundation Year 1 doctors) found most useful when teaching medical students (near-peers) in our FY1-led programme. We also introduced peer feedback from FY1 observers, who receive no additional training, to determine whether this enhanced the use of feedback in teachers' development.
Summary of work: We conducted focus groups with FY1s and analysed questionnaires to obtain qualitative data. FY1s were asked about their experiences and perceptions of feedback received and how this influenced their training and development.
Summary of results: Junior doctors derived great value and encouragement from near-peer feedback. Participants gained new insights that aided reflection and development. However, students infrequently suggested criticisms or improvements. Peers identified more potential improvements, which were considered the most valuable components of feedback. Positive feedback was more valued when from students. FY1s found that giving feedback increased awareness of their own teaching methods.
Conclusions: Feedback from near-peers and peers complement each other to provide a comprehensive assessment of teaching. Dedicated sessions on giving feedback may enhance the quality of feedback.
Take-home messages: Near-peer feedback is highly valued and appreciated by junior doctors. Incorporating peers into the feedback process is an easy way to increase the usefulness of feedback to the developing teacher.

9CC/12
Medical students in the feedback process

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Background: The last two decades have brought a seismic shift in the provision of feedback. Feedback has been described as an essential, even "crucial," feature of medical education.
Summary of work: The students of Jessenius Faculty of Medicine have designed their own evaluation questionnaire. It gives each student the opportunity to evaluate subjects and teachers in academic year 2011/2012. Course questions were focused on: content, interest, satisfaction/performance and recommendation. The questions about teachers were focused on: professionalism, ability to explain, time efficiency and access to students. Students responded to each question using a 5-point scale (subjects 1=strongly agree and 5=strongly disagree; teacher 1=very well and 5=poor).
Summary of results: Evaluation of the results was from beginning to end in the hands of students (elected representatives). 458 students participated in the evaluation (1st year n=96, 2nd n=93, 3rd n=94, 4th n=79 and 5th n=96). The Dean praised the best-rated professor, associate professor and assistant at the beginning of the new academic year 2012/2013. The evaluation report is publicly available on our faculty website.
Conclusions: Course assessment is an efficient method of recognizing the strengths and weaknesses of teaching at the end of the current academic year. However, the question remains, how quickly can gaps in the teaching process be identified and removed.
Take-home messages: Feedback in medical education is specific information with the intent to improve the student's performance.

9CC/13
Students' perception on the experience of learning portfolios in medical education

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Background: A portfolio in medical education is a collection of documents providing evidence of learning and a self-reflection from those documented events. This study explored medical school students' perception on the experience of learning portfolios for the year 2012.

Summary of work: The portfolios were designed to enable students to demonstrate their personal development and to stimulate self-reflection. The portfolio binders were given to 167 students at the beginning of the semester. The outstanding students received scholarships at the end of the semester. 40 students of Ajou university school of medicine who have submitted the portfolios completed the questionnaire.

Summary of results: 80% of students were satisfied with the experience of portfolio, 95% answered to participate in the next year. The main reasons of participation were the scholarship (53%) and the preservation of learning experiences (33%). The advantages of portfolios were a collection of students' work (39%) and provision of teachers' feedback (25%). Meanwhile, 49% of students felt it was difficult to configure the contents of portfolio.

Conclusions: The results of the study suggest that portfolios have helped to collect evidence of learning, but are less effective for self-reflection. A guide is needed on what it is and how it can be used.

Take-home messages: Portfolios are increasingly used and highly valued in medical education but to date there are few studies that examined learning portfolios in South Korea. Further research on the effects of portfolio on self-reflection in medical education is required.

9CC/14
Does the Summative Assessment Performance Relate to the Portfolios Performance in Under Graduate Year Surgical Training?

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Background: This study aims to explore the relationship between the performance of the summation assessment and the performance of portfolios in Undergraduate (UGY) students when they are trained in a surgical department.

Summary of work: Thirty-six undergraduate students (Interns) who received surgical training within a 3 month period at Chang Gung Memorial Hospital at Linkou, Taiwan, were included. We evaluated their learning and performance using portfolios and a summation assessment which included a MCQ test, a 3-station OSCE and a 3-station DOPS at the end of the program.

Summary of results: The MCQ test consisted of 50 questions, and the 3-station OSCE consisted of one physical examination station, one history taking station and one communication station. The DOPS included operation scrub technique, operation room preparation and suturing technique. The performance scores of portfolios were compared with the scores of these summation assessments. The results were: DOPS (p= 0.087), OSCE (p=0.884) and MCQ (p=0.753). The results do not demonstrate a significant difference between these 3 groups.

Conclusions: There was a minimal relationship between the score of the DOPS and the performance of the portfolios (p=0.087). The performance of the portfolios still cannot predict the performance in MCQ and objective structured clinical examination (OSCE). We found the above evaluation methods are still necessary and important for evaluation of clinical competences for Undergraduate (UGY) students when they are trained in a surgical department.

Take-home messages: he portfolios cannot predict the performance of an objective structured clinical examination (OSCE) and MCQ for Undergraduate (UGY) students when they are trained in a surgical department.

9CC/15
Assessing shared decision-making skills of 3rd year medical students.

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Background: 70% of patients wants to be involved in their care. Shared decision-making (SDM) meets this need, having a positive effect on satisfaction, quality of life and the doctor-patient relationship.

Summary of work: We teach 3rd year medical students a 6-phase SDM consultation model:
1. Start (goal, equipoise). 2. Informing (treatment options, pros/cons). 3. Deliberation (weighing considerations, concerns). 4. Preference. 5. Preferred role in decision-making. 6. Decision.
Video recordings of 364 students conducting SDM consultations with simulation patients were made, uploaded in students' digital portfolio, shared with two peers and assessed by teachers. Summative assessments were made using a semi-structured rating list. Assessments were categorized as: below expectations (4-5), meets expectations (6-7-8), and above expectations (9-10). Furthermore, students provided written reflections on self-selected events in their consultation. They both received and provided peer-feedback. By fulfilling this assignment, students received a positive assessment of 'professional behaviour'.

Summary of results: A semi-structured rating list was developed to assess SDM skills of 364 medical students. The average assessment was 7,2. 16 students (4,4%) failed, whereas 24 students (6,6%) performed above expectations. The majority of students (89%) performed at 'meets expectations' level. All students fulfilled their reflective assignment.

Conclusion: Our 6-phase consultation model can be used to teach SDM skills. These skills can be assessed using our semi-structured rating list.

Take home message: SDM skills can be taught and assessed.

9CC/16

Validating force-based metrics for computerized assessment of technical skills in laparoscopic surgery

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*(Presenter: **Sayra Cristancho**, Schulich School of Medicine and Dentistry, Centre for Education Research and Innovation, 339 Windermere Road, London N6A 5C1, Canada)*

Background: Learning the required motor skills to perform minimally invasive surgery is especially difficult. Automated performance metrics are needed to provide trainees with feedback, allowing for more efficient learning.

Summary of work: The SIMIS system, which uses instruments that measure position and force during training, was used to compute metrics related to safety and consistency. Thirty subjects with varying experience performed a laparoscopic knot-tying task. A Pearson correlation was used to compare the SIMIS metrics to those simultaneously obtained with the ICSAD system, which is considered a validated method. Spearman's Rho correlations were used to compare all metrics with experience level.

Summary of results: Results show that the SIMIS metrics have slightly stronger correlations with experience level than the ICSAD metrics (-0.781 for safety and -0.796 for consistency, vs. -0.736 for path length, -0.629 for number of movements and -0.792 for time, $p < 0.001$). There are also significant correlations between the SIMIS and ICSAD metrics (e.g., safety correlates with path length (0.535) and time (0.528)).

Conclusions: Current computer-based feedback systems do not provide trainees with information that can be readily related to patient safety. The force data collected with SIMIS is able to provide trainees with information that is related to consistency and overall safety. The SIMIS/ICSAD comparisons demonstrated concurrent validity for the proposed performance metrics. The metrics obtained with the SIMIS system reflect important performance characteristics and are shown to correlate well with experience level and currently validated metrics.

Take-home messages: Force information can be used to develop performance metrics that relate to patient safety and instrument control.

9DD Posters: Leadership
Location: South Hall, PCC

9DD/1
Developing physicians as managers of care: a systematic review of assessment methods

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Background: The increasing demands for effective and efficient health care delivery systems worldwide have resulted in an expansion of the desired competencies that physicians need to possess upon graduation. Presently, medical residents require additional professional competencies that can prepare them to practice adequately in a continuously changing health care environment. Recent studies show that despite the importance of competency-based training, the development and evaluation of management competencies in residents during the residency training is inadequate. The aim of this systematic literature review was to find out which assessment methods are currently being used to evaluate trainees' management competencies, and which, if any, of these methods make use of valid and reliable instruments.
Summary of work: In September 2012 a systematic search of the literature was performed using the Pubmed, Cochrane, Embase, Medline and ERIC databases. Additional searches included scanning the references of relevant articles and sifting the 'related topics' displayed by the databases.
Summary of results: 25 out of 178 articles were selected for final review. Four broad themes emerged after analysis that best reflected their content: Category 1. Assessment tools used to evaluate the effect of implemented curricular interventions; Category 2. Assessment tools based on recommendations or views from consensus surveys or conventions; Category 3. Assessment tools intended for assessing general competencies; and Category 4. Assessment tools that focused exclusively on systems-based practice or management competencies.
Conclusions: Little information was found about (validated) assessment tools being used to measure management competence in practice.
Take-home messages: Our findings suggest that a combination of assessment tools should be used when evaluating residents' management competencies.

9DD/2
Medical students as Managers of their university hospital, a pilot course

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Background: Doctors are expected to develop competencies beyond medical patient care in order to succeed in modern health care delivery systems. The Manager role has been defined by various competency catalogues for health care professionals, however concrete pedagogical implementation concepts are lacking.
Summary of work: We established an innovative course at LMU Medical School aiming to foster the Manager role in our curriculum. Students initially develop an understanding of the basic principles of the German health care system and hospital management through PBL tutorials, lectures and workshops. Subsequently, we organize a simulated hospital board meeting, with students posing as members of the university hospital's supervisory board. They develop a viable solution for a current issue the supervisory board is tasked with and ultimately present their results to their role models.
Summary of results: 24 Students evaluated with a response rate of 95.8%. The course was graded with a mean of 1.08 (SD ± 0.2, 1=excellent and 6=poor). Questions about the German health care system were rated with means ranging from 3.17 to 4.69 (1="excellent knowledge" to 6="very poor knowledge") prior to the course. After completion, significant improvement could be detected in all core points assessed with the questionnaire (means ranging from 1.85 to 2.55). These results were confirmed by semi-structured interviews.
Conclusions: The course was evaluated positively and students seem to have gained some management competencies, including the development of a realistic business plan for complex management tasks.
Take-home messages: In our setting, teaming up medical educators and management personnel has created a win-win situation while teaching the Manager role.

9DD/3

Taking the lead - medical management and leadership training in the pre-clinical medical curriculum, one year on

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Deborah Gill (UCL Medical School, Department of Medical Education, London, United Kingdom)

Background: Following a needs analysis amongst 1st-year undergraduate medical students at UCL one year ago, which highlighted a need and a desire for management and leadership training early in the undergraduate curriculum, a student selected component (SSC) entitled "Taking the Lead" was piloted.
Summary of work: The medical management and leadership SSC at UCL Medical School comprised eight ninety-minute seminars, delivered by UCL faculty, and members of the independent-sector, including KPMG and BUPA. The SSC was designed to meet the undergraduate learning and development outcomes outlined in the Medical Leadership and Competency Framework by the NHS. A modified Hennessy-Hicks training needs assessment questionnaire was administered to students who completed the SSC (n=14), and compared with results from 1st-year medical students who had not participated in the pilot (n=60). The importance attributed to, and students' stated performance of management/leadership tasks was assessed.
Summary of results: Analysis revealed that students who completed the SSC perceived that management/supervisory tasks would play a more important role in their future success as clinicians, compared with students who did not participate in the SSC. Furthermore, students who had completed the SSC reported their own performance in management/supervisory tasks as being significantly higher compared with their undergraduate peers who had not completed the SSC. UCL Medical School has decided to make this SSC a permanent fixture in their undergraduate curriculum.
Conclusions: Early education in medical management and leadership helped to address the training need identified in our earlier study.
Take-home messages: Medical management and leadership training should form part of the undergraduate curriculum at medical school.

9DD/4

Leadership-trained residents as a bridge between undergraduates and professionals providing greater focus on professional competence in medical education

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Background: To be able to provide effective, safe and high quality care in the future, clinicians as well as medical teachers need to be more involved in leadership and in health care improvement. Faculty development is a central issue in improving quality of education in leadership and professionalism in medical education.
Summary of work: The Sahlgrenska University Hospital in Gothenburg, Sweden, runs an advanced leadership programme for residents (leadership residency) with individually planned leadership education up to 18 months in addition to clinical residency. Leadership residents representing various specialities form a group that collaborates in several issues while having their individual profiles in leadership, management, tutoring, team work and quality improvement. By 2013 five residents have finished and ten more are enrolled in the programme.
Summary of results: The group of leadership residents has become to play an important role in teaching leadership, professionalism and quality improvement for residents as well as undergraduates. They have roles as tutor, project leader, lecturer, manager and medical advisor leading to parallel professional development of residents and their students.
Conclusions: Advanced leadership programme for residents with various professional competences is a possible way for faculty development and enables co-operation between university and medical clinics in order to reach more focus on professionalism in clinical education.
Take-home messages: Leadership-trained residents are a resource that can be used in teaching professionalism and faculty development.

9DD/5

Situated learning for registrars on post-take ward rounds

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Background: The post-take ward round (PTWR) provides formal consultant review of acutely unwell patients admitted to hospital, yet specialist medical registrars, the consultants of tomorrow, receive little to no formal training in this area. An expectation exists that 'on the job' experience provides sufficient preparation for this important aspect of clinical leadership.
Summary of work: We aimed to seek the opinions of medical registrars on the use of a structured considerative checklist and learning by example approach in PTWR leadership training, assessing whether this model influences current and future practice. This was studied through a questionnaire-based survey of registrars working in Worthing Hospital from 2009 to 2011.

Summary of results: 18/25 registrars (72%) across a range of specialties returned questionnaires. Though one third of respondents had considered how they conduct ward rounds, none had received formal training. Most felt such skills were acquired 'on the job' from observation and experience of those conducted by senior colleagues. Exposure to the considerative checklist changed thinking in 94% and practice in 88%. Common positive themes included enhanced pre-ward round preparation, the importance of inclusion and communication and need for structure (facilitated by physical or mental checklist). 17/18 participants felt that this training would influence their consultant practice.

Conclusions: Trainees respond positively to participation in a structured PTWR utilising a considerative checklist as a model of good practice, promoting changes to current and future practice, and could be considered a training tool.

Take-home messages: PTWR leadership represents a training need and efforts should be made to aid trainee development, potentially through a checklist model.

9DD/6
Foundation Doctor Leadership in Friday Handover: How a pilot medical rota redesign produced unexpected benefits

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Background: In response to profound changes brought about by the European Working Time Directive, East Kent Hospitals University NHS Foundation Trust has engaged in a Health Education England pilot to redesign the medical rota. Creating "hot" and "cold" teams has led to an enhanced weekend ward-cover team, adding a registrar, senior nurse and healthcare assistant to the Foundation doctor covering the medical wards.

Summary of work: Designating a ward-cover team has improved Friday handover in terms of highlighting patients requiring review, important jobs to be completed and potential discharges. Due to hospital practicalities, this process has been led by Foundation doctors, allowing them to practice and develop many of the qualities outlined in the Medical Leadership Competency Framework.

Summary of results: In leading the handover meeting, on-call Foundation doctors have taken the opportunity to use their clinical knowledge to: obtain necessary information, triage patients accordingly, discuss difficult cases, question the indication or importance of certain requests, and subsequently use that information to lead the ward-cover team by setting priorities and allocating time and resources appropriately.

Conclusions: This scheme has succeeded in ensuring that patients are reviewed in a timely fashion by appropriate people, that investigations ordered are

justified and that resources are maximised. This has led to an overall reduction in mortality and an increase in safe discharges over the weekend.

Take-home messages: Allowing appropriately supported Foundation doctors to take the lead in Friday handover meetings, and thereafter guide the ward-cover team's duties, has provided valuable opportunities to develop their medical leadership competencies whilst still providing better care to patients.

9DD/7
What is the return on investing in Leaders of the Future: The Yorkshire and The Humber Deanery "Fellows in Clinical Leadership" Programme?

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Background: The development of leadership skills in doctors has been highlighted as essential for effective and safe patient care. The Yorkshire and Humber Deanery has introduced 35 (2012-13) Management and Leadership Fellowships for specialty trainees.

Summary of work: The trainees are involved in projects that enable them to gain practical and academic competencies in medical education, patient safety, service evaluation and leadership from local and national experts in the field. The Fellows are also funded to complete an academic qualification.

Summary of results: The Fellows' outcomes for one year will be assessed using a tool which consists of matching projects completed, with the five domains of the Medical Leadership Competency Framework. Qualitative data will also be collated to show the impact that interventions have had in several areas; eg the number of trainees benefitting from an educational intervention.

Conclusions: Trainees are encouraged to continue personal development in areas relating to leadership, education and management. This ensures the creation of a solid foundation upon which to build their future careers. In addition, organisations will also benefit from the outcomes of the projects undertaken by each fellow.

Take-home messages: The end of year assessment of the Fellow, using the outcome tool, will act as evidence for the stakeholders to quantify return of investment, allowing for future strategic planning.

9DD/8
Management programme for junior doctors at the University of Helsinki

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Background: Effective clinical leadership has been shown to improve patient outcomes, and patient and provider satisfaction. Published literature indicates that medical schools provide little or no structured management training for young doctors.
Summary of work: Since August 2009 a management development programme of 30 ETCS is mandatory for all physicians and dentists in specialty training, with around 250 starting annually in Helsinki. A framework for competencies was developed nationally. The aim is for participants to obtain knowledge, skills and attitudes of frontline clinical managers. The individually planned programme can be completed in 3-5 years. The design is based on principles of experiential learning.
Summary of results: Real-life experiences of the young doctors are systematically used. Effective interactive adult learning facilitation and problem and case-based learning methods as suitable for these learners are used. Both individual and shared reflection is endorsed. Practice-based improvement projects allow active experimentation and create concrete experiences. An e-learning platform and e-portfolio enhance individual planning, tailoring and evaluation of learning. Evaluation of improvements in learning and practice will be gathered.
Conclusions: A mandatory management development programme as part of specialist training gives frontline management competence to young physicians and dentists.
Take-home messages: Young doctors receive structured management training to become competent frontline clinical managers.

9DD/9
Leadership Assessment in the Consultant Application Process: How prepared are our SAS Doctors?

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Background: Trusts are using leadership assessment tools as part of the application/ interview process for consultant posts. In East Kent Hospitals University NHS Foundation Trust (EKHUFT), we found internal applicants were ill-prepared for such assessments. Our objective was to work with potential SAS doctors applying for consultant posts, using a devised intervention to improve their preparedness and confidence levels and help identify specific professional development needs.
Summary of work: Participants were sent current, sample leadership assessment materials. These consist of scenarios requiring applicants to submit a report and a presentation in advance of interview which are scored against a leadership competency framework. An online questionnaire was followed up with a workshop. After this intervention, a follow-up questionnaire was sent.
Summary of results: The pre-intervention survey showed most SAS doctors were under-confident in the specific requirements of the leadership assessment tasks. They lacked knowledge of the leadership competencies required, including presentation formats. The workshop provided details of leadership competencies, including scoring scheme and how these could be demonstrated in interview reports, presentations and group scenarios. A subsequent questionnaire revealed greatly improved confidence, greater preparedness, and a clearer awareness of the need for and ways to make explicit, in different formats, those required leadership competencies. SAS doctors also identified CPD needs and a need to extend the project to promote their career progression.
Conclusions: SAS doctors have clear leadership skills and potential but need and welcome support in preparing for the explicit demonstration and assessment of those skills at consultant interview.

9DD/10
Building Leadership and Management Competencies Among Nurses

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Background: The purposes of this study are: 1) to explore the current competencies of nursing managers in leadership and management; 2) to assess nurses' needs in building leadership and management skills; 3) to design continuing education courses for nurses in developing leadership and management competencies.
Summary of work: The study methods include systematic review of the literature, cross-sectional survey, and expert focus group discussion. The targeted population is nursing managers who work at medical centers or area hospitals for at least 6 months in Taiwan.

Stratified randomization is used to select study subjects. This study will employ two self-constructed questionnaires, "Nursing Manager's Self-Awareness of Leadership and Management Competencies" and "Needs Assessment of Nurses in Building Nursing Leadership and Management Skills", with adequate expert content validity, internal consistencies, and test-retest reliability. Data analyses include descriptive statistics (frequency, percentage, mean, and standard deviations), T test, univariate analysis of variance, Scheffe's posteriori comparison, and Pearson's correlation.

Summary of results: Nursing managers consider their leadership and management skills are insufficient, especially for males. They think that they need to be trained.

Conclusions: Results from the systematic review of the literature and the cross-sectional survey, as well as continuing education courses related to nursing leadership and management in Taiwan and abroad will be provided to experts before conducting focus group meeting, in order to design a set of continuing education courses that meet nurses' needs in developing leadership and management competencies.

9DD/11
Leadership Roles for Training Doctors in Change Implementation

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Background: East Kent Hospitals University NHS Foundation Trust, using funding awarded by Health Education England under the Better Training Better Care project, have been piloting a new medical rota with an enhanced weekend team, managing the care of ward-based in-patients that is led by an additional registrar.

Summary of work: The role of the registrar has been key in changing service delivery and implementing the new changes. One registrar has been a permanent member of the Project Management Team and others regularly attend meetings. The project has seen registrar involvement in designing the new rota, in designing/implementing an improved Friday handover, in leading the weekend team and in liaising with both consultant and foundation level colleagues.

Summary of results: Using the Medical Leadership Competence Framework (MLCF), registrars have been able to log development in all seven domain areas. Proactive engagement in the project has involved registrars in team-working with a wide variety of stakeholders, in resource-utilisation, in financial planning, audit and in national presentations. Health

Education England have been delighted to see the active leadership demonstrated. Early results for the project over 4 months have been very encouraging and show more pro-active care, reducing mortality, improved rates of appropriate discharge and decreasing length of stay.

Conclusions: It can be easy to think that bringing about change is someone else's job. Collaborative project management that involved training doctors from the very beginning has demonstrated continuing enthusiasm, drive and initiative and real leadership in those training doctors.

Take-home messages: Involving training doctors in projects will develop their leadership competencies and will help bring about purposeful change that improves patient care and training.

9DD/12
Getting down to business - is there a role for the independent-sector in the undergraduate medical curriculum?

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Background: The landscape in UK healthcare is such that there is increasing focus on improving patient care through management and leadership. However, the process of developing these skills at an undergraduate level appears restricted to supported experiences in non-clinical environments. This project explores the educational outcomes of the independent-sector's participation in a UCL Medical School student selected component (SSC).

Summary of work: A medical management and leadership SSC was designed for first year undergraduate medical students at UCL. It comprised a series of eight seminars and workshops with participation by KPMG, a management consultancy firm with a strong presence in healthcare, and BUPA, a multinational healthcare corporation.

Summary of results: Students who completed the SSC have measurably enhanced their leadership competencies, as defined by the Medical Leadership Competency Framework. Feedback from our students revealed three recurrent themes: speakers from KPMG and BUPA were identified as the aspect of the course which most facilitated students learning; students unanimously agreed that they observed high standards of professional behaviour that they would like to emulate; and students felt well-prepared for their future profession after taking the SSC.

Conclusions: The independent-sector exposes undergraduate medical students to a broader healthcare eco-system. Early exposure in the medical curriculum is key as it gives students the opportunity to develop their leadership and management skills without needing to organise self funded management-oriented internships later in their course.

Take-home messages: There is much to be gained from incorporating independent-sector knowledge of management and leadership into medical training.

9DD/13

Evaluation of a research capacity intervention for academic staff within the Appreciative Inquiry Framework

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Background: As a framework used for organisational change, Appreciative Inquiry is suitable for the evaluation of research capacity development interventions. The aim of the study was to explore faculty's experiences of a research capacity development intervention using the Appreciative Inquiry framework.
Summary of work: This study used a qualitative contextual exploratory design. Five academics volunteered to participate in a focus group discussion which explored their experiences of a research capacity intervention they participated in. An interview guide was used to collect the data. Content analysis using the Appreciative Inquiry framework was used to analyse the data. Ethical clearance was obtained from the University of the Western Cape's ethics committee.
Summary of results: The themes that emerged from the focus group discussions are presented according to the appreciative inquiry phases. Within the discovery and description phase were active contextualisation of teaching and learning concepts, emotion based intrinsic factors related to the intervention and interaction with facilitators. Within the dream phase the participants visualised the need for continued mentorship and support. Within the designing and destiny phase were recommendations relating to the content and format of the intervention.
Conclusions: Appreciative Inquiry process can be used to evaluate academics experiences of interventions.
Take-home messages: Analysis of the focus group discussion using the Appreciative Inquiry Framework highlighted that while the capacity development intervention had been a very positive experience, there was still room to develop post-intervention support initiatives to help faculty cope with the disablers encountered in their everyday work environment.

9DD/14

Trends of research purpose in the Asia-Pacific region in the last 5 years: a systematic review

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Background: Little is known about the progress of medical education research in advancing the field through clarification studies situated within a strong conceptual framework. We aimed to determine if there is a trend towards increase in clarification studies as opposed to descriptive and justification research purposes (Cook et. al., 2008) in the Asia-Pacific region in the last 5 years.
Summary of work: We conducted a systematic review of eligible original research abstracts presented at the 2008, 2010 and 2012 Asia Pacific Medical Education Conferences (APMEC). We performed trended Chi-square tests with post-hoc pairwise comparisons followed by logistic regression adjusted for variables that are significant in bivariate analyses, to determine if there is a longitudinal trend towards increase in clarification studies.
Summary of results: Our sample comprised 517 abstracts (2008: 136; 2010: 195; 2012: 186). There was a significant trend through the study period (Clarification studies: 4.4% vs 8.7% vs 12.9%; p=.001), with post-hoc analyses significant for clarification-descriptive (p=.004) but not clarification-justification (p=.19) comparisons. When adjusted for professional group, country of study, presence of clear study aims and non-descriptive study design, abstracts in 2012 were still significantly more likely to have a clarification research purpose compared to 2008 (OR 2.74, 95% CI 1.04-7.23).
Conclusions: There is a trend towards increased rigor of research purpose in medical education research in the Asia-Pacific region in the last 5 years.
Take-home messages: Our results affirm the progress made in the quality of medical education research in the Asia-Pacific region in the last 5 years.

9DD/15

The practice of Institutional Research in Chiba University School of Medicine and Chiba University Hospital (1): Framework of IR

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Background: Functions of Institutional Research (IR) are to collect data, to analyze it and to report the result of analysis for improvement of own institution. IR in Chiba University School of Medicine and Chiba University Hospital was launched in April 2011 to assure the quality of our medical education and to support our students and residents.

Summary of work: The IR section is set up at the Office of Medical Education in Chiba University School of Medicine and Health Professional Development Center in Chiba University Hospital. The members of IR section are two researchers and two clerical assistants. The scope of database is data before school of medicine (score of entrance examination, achievement at high school, demographics, etc.), data during school of medicine (matriculating questionnaire, Grade Point Average (GPA), score of CBT, OSCE, and national exam for medical practitioners, graduation questionnaire, etc.), data after school of medicine (specialty, geographic location, place of working, follow-up questionnaire, etc.). We are constructing a centralized database.

Summary of results: We started to collect these data in 2011. We implemented graduation questionnaire in 2012. We are going to carry out matriculating questionnaire in 2013. By doing so, we are able to know the self-assessment of students, student satisfaction with curriculum and so on.

Conclusions: We can find out some problems with our medical education from these survey results.

Take-home messages: Medical education should be improved on the basis of evidence. IR will play a key role in improvement and quality assurance of medical education.

9DD/16

The practice of Institutional Research in Chiba University School of Medicine and Chiba University Hospital (2): An analysis of Graduation Questionnaire

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Background: Institutional Research (IR) has recently attracted the attention of people involved in Japanese higher education. IR is "research conducted within an institution of higher education to provide information which supports institutional planning, policy formation and decision making" (Saupe, 1990). Japanese universities are required to autonomously improve themselves because of changes in the managerial environment and various university reforms such as transformation of national universities into national university corporations and introduction of the certified evaluation system.

Summary of work: Chiba University School of Medicine started outcome-based medical education in 2008 and LISME project (Longitudinal Inohana Study of Medical Education) in 2011, which is aimed at investigating the effectiveness of OBE and getting a better understanding of our students. GQ (Graduation Questionnaire) is carried out as part of this project since 2011. The results of questionnaire are joint data of academic affairs and analyzed by institutional researchers.

Summary of results: It is questioned in GQ that level of student satisfaction with curriculum, experiences in campus life, self-assessment of competencies, aspirations for the future career and so on. These results are analyzed in relation to test score (CBT, OSCE, national exam, etc.), grade point average (GPA) or demographic factor.

Conclusions: By doing so, we can understand what kinds of students have a high satisfaction level of curriculum and what kinds of experiences have effect on GPA.

Take-home messages: These kinds of analyses are important in terms of not only understanding needs of students but also quality assurance of students, institutions and medical education.

9DD/17

SUGAM - An Innovative way of strengthening of medical education and health care outcome

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Background: An online grievance redressal system "Sugam" was started on 12th May 2012 after the medical education unit received only 16% portal utilized by medical persons in Rajasthan. This is an innovative way to lodge grievances and objection against the medical education department and other administrative departments of Rajasthan. That will ultimately improve the health outcome.

Summary of work: Objective: To evaluate the utilization of this portal by medical teachers and students and others that will effect improvement in medical education and patient care. It is a retrospective evaluation of grievances received on the Sugam portal of Government of Rajasthan. Responses and feedback were taken from staff and doctors about this portal by online feedback method.

Summary of results: Use of the web portal was found to improve attitudes towards health related grievances information. Participants considered the web portal to have good utility, usefulness, and credibility. The intervention group showed 22% increase in the use of the portal after conduction of one day sensitization workshop and excellent feedback.

Conclusions: Despite the fact that the study was underpowered, we found that the web portal may have a positive effect on attitudes towards health related grievances. Furthermore, participants considered the Sugam web portal to be a relevant tool. It is important to continue experimenting with web-based grievance redressal portal in order to increase user participation in health related grievances for decision-making. That will improve health care and it is Best Health Care Monitoring and feedback method.

Take-home messages: This Sugam web portal was help to serve as a grievances redressal portal to improve the efficiency of medical teachers, doctors and students. This will help in improvement of the doctor-patient relationship and patient care.

9DD/18
Educating for quality - An evaluation of a workshop for new accreditation surveyors

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Background: The Royal College of Physicians and Surgeons of Canada accreditation standards mandate residency programs to have regular, in-depth, on-site reviews of all aspects of the program. Surveyors involved in a formal Royal College review receive hands-on training about the process, intent, and content of an on-site review prior to their participation in the accreditation process.

Summary of work: We conducted a survey of 40 participants in a one-day workshop for new surveyors over the last two years. Results were compared to a pre-workshop needs assessment for new program directors as well as a post-workshop survey of participant's experiences as an on-site surveyor, linking program directors' preconceived needs with surveyors' post-hoc perceptions of the workshop and their preparedness for the survey.

Summary of results: Participants identified numerous positive aspects of the workshop and were able to link subsequent performance to lessons learned.

Conclusions: Accreditation reviewers felt better prepared to conduct a program review once they had received training. The current training sessions offered by the Royal College fill an important need for accreditation reviewers.

Take-home messages: Training of accreditation reviewers in an important part of the program review process.

9DD/19
E'QIP'ing Our Trainees for the Future – The LSSOG Leadership Programme

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Background: Our objective was to embed modern leadership skills in training, to link trainees with trust management and facilitate the development of quality improvement projects (QIP's).

Summary of work: This six day course provided a strategic overview of National Health Service structure and finances, training in different leadership styles and the medical leadership competency framework. Coaching, team working skills, career development and psychometric profiling underpinned the course. Participants attended Trust corporate meetings and shadowed clinical and managerial directors to provide 'hands-on' learning. They were required to conduct a QIP that was presented on the last day.

Summary of results: Participants were from all specialties and ranged from FY1 to ST7. They developed a wide range of QIP's including the development of ambulatory clinics, "a hot surgical clinic", implementing national guidelines into practice, improving colonoscopy outcomes, improving efficiency of junior doctor rotas and inter-hospital transfers. When presented to the medical director, he commented "listening to presentations was one of the most invigorating days he had spent in the NHS in a very long time"

Conclusions: Trainee evaluation concluded: "This course was more than a tick box exercise. It has been extremely valuable at fostering clinical leadership and promoting change in the work place. " "The timing of the course meant that meaningful reflection could take place during a busy clinical post helping to embed concepts into practice."

Take-home message: The management and leadership skills e'QIP'ed our participants with the support, knowledge and skills to engage in QIP's and make a valuable impact on clinical care and safety.

9DD/20
Academic Collaboration: Research on Benefits around Teaching in General Practice (ACROBAT-GP)

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Fiona Burnell (Griffith University, Medical Student, Logan, Australia)
Christopher Harnden (Griffith University Medical School, General Practice, Logan, Australia)
(Presenter: Jane Smith, Bond University Medical Program, General Practice, Level 2, Faculty of Health Science and Medicine, Gold Coast 4229, Australia)

Background: Development of national and international standards in healthcare education means different institutions are often working to achieve the same educational goals. With a growing numbers of students, workplace based placements are often shared. The close proximity of students can provide an opportunity for academic teaching staff from different universities to work together to achieve common goals. Institutions need to collaborate to achieve this.

The Bond University and Griffith University general practice academic departments interact regularly to discuss and compare curricula and clinical placements for students, as well as mutual planning to support general practice teachers and create opportunities for research.

Evaluation results of our model of collaboration can inform future practice regarding the benefits and drawbacks of collaboration between university departments of General Practice.

Currently qualitative information on this topic appears scarce. We provide an example of an inter-institutional collaboration that gives staff an opportunity to work together to achieve similar goals. The ACROBAT-GP study qualitatively analyses the experience of collaboration between these two universities

Summary of work: Qualitative research methods are used to interview and analyse emergent topics and themes.

Summary of Results Themes concerning the perceived benefits to the academics, their students, the workplace teachers, and the universities involved in the collaboration will be presented at the conference. Perceived barriers to academic collaboration and the effects of knowledge exchange between the academics are also discussed.

Conclusions: The perceived benefits predominate

Take-home messages: Academic Collaboration Creates An Interactively Made Educational Delight (ACROBAT-GP ACCLAIMED)

9FF ePosters: Postgraduate Education 2
Location: North Hall, PCC

9FF/1
Teaching Transitions of Care through Analyzing Readmissions

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Background: Nearly 20% of Medicare patients are readmitted within 30 days of hospital discharge. Preventing readmission has become a nationwide priority; many centers have developed programs to improve transitions of care. However, residents have not been fully included in these efforts; better resident education methods are needed to further decrease readmissions.
Summary of work: Residents received didactic education about safe discharge practices. Thirty days following a wards month, residents received a list of patients who had subsequently been readmitted. Using a structured tool, residents collected follow-up information on four patients and contacted patients, their families, outpatient providers, and the readmitting team. Residents recorded in their portfolio patient outcomes, identified systems issues and reflected on how this review would impact their clinical practice.
Summary of results: All residents believe that patient followup after discharge will lead to improvements in their care, most (73%) are motivated to pursue a system change based on their review and nearly all (91%) believe that this should be a required exercise. Through qualitative analysis of residents' portfolios, the commonly identified themes are medication issues, the importance of timely outpatient follow-up and the need for advance care planning.
Conclusions: Alignment of national patient quality goals with resident education is a high priority in graduate medical education. Our unique program provided a safe discharge educational curriculum that was reinforced by resident case review leading to learner engagement with systems improvement efforts.
Take-home messages: This resident activity fills a current educational gap that can inform systems changes to improve care transitions.

9FF/2
Optimising programme design of regional competency based study days for paediatric trainees

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Background: Postgraduate training in the UK has moved towards a competency based curriculum. However, some competencies are difficult to acquire at local level. In response, the London School of Paediatrics developed a 2 year cycle of monthly regional study days to address such competencies.
Summary of work: To optimize delivery, each day was designed using specific competencies identified through curriculum mapping work. Inspiring and well renowned speakers from across the London were invited to speak. Introduction of workshops facilitated the direct application of acquired knowledge to clinically relevant cases. All study days were evaluated, focusing on learning outcomes and application of skills.
Summary of results: Attendance rates at the study days were high. 98% of trainees reported that the days successfully addressed competencies that are difficult to achieve at local level. 83% perceived the workshops as useful and valued the opportunity to apply knowledge to cases. 95% expressed confidence in changing their own clinical practice. Follow-up qualitative data has shown that trainees have successfully used the learning from the study days to change their own clinical practice and implement changes in their local workplace.
Conclusions: The London School of Paediatrics series of Study Days is unique in directly addressing the specific curriculum requirements of paediatric trainees in London, providing trainees with the confidence to improve clinical practice both on a personal and organisational level.
Take-home messages: Competency based regional study days successfully support learning in the workplace by addressing specific areas of the curriculum. It empowers trainees to drive local changes in practice thereby improving local standards of care.

9FF/3
Burnout in Run-through Specialty Trainees

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Background: To examine whether first year trainees from 3 run-through specialties (Obstetrics and Gynaecology (O&G), General Practice (GP) and Paediatrics) suffer from burnout and to examine associations between burnout and specific personality and work related factors. Findings from this study will enable the development of trainee support services across the United Kingdom.
Summary of work: 604 London Deanery trainees in their first year of O&G, GP and Paediatric training completed online questionnaires. The 3 aspects of Burnout (Depersonalisation (DP), Emotional Exhaustion (EE) Personal Accomplishment (PA)) were measured using the Maslach Burnout Inventory. A 5 factor personality measure was used (detailing agreeableness, conscientiousness, extraversion, neuroticism and openness) and demographic data were collated. Data were held confidentially and reported anonymously. Statistical analysis was performed using SPSS.
Summary of results: O&G trainees scored lowest on DP (10%), lowest on EE (29%) and highest on PA (94%) compared to GP and paediatric trainees. Neuroticism was significantly associated with elevated DP and EE scores whereas agreeableness and conscientiousness were significantly associated with lower DP and EE scores. The opposite pattern was obtained for PA.
Conclusions: There were significant associations between certain personality factors and an increased likelihood of experiencing burnout in run-through training. The finding that trainees with post-foundation experience of the specialty were less burnt out than those who had gone straight from foundation into a run-through programme needs to be explored further in order to identify possible support strategies.
Take-home messages: Trainees who had post-foundation experience in their chosen specialty prior to taking up their training number were less likely to experience burnout.

9FF/4
Regional teaching days positively influence the learning climate of a postgraduate school of paediatrics

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Background: Our large regional postgraduate school of Paediatrics (>1000 trainees) delivers a two year programme of study days which aim to address areas of the curriculum which had been identified as difficult to access in the workplace. The training days are focussed on trainees who are currently 4-5 years into an 8 year training programme and are delivered centrally, with trainees attending from 35 different base hospitals.
Summary of work: We evaluated the impact of these innovative days on the learning environment of the regional school of paediatrics via a series of focus groups. Participants were either attendees at the training days, or regional training representatives. Focus group transcripts were independently analysed using a modified thematic analysis and themes were identified and further refined using the framework analytic approach.
Summary of results: The emerging themes fell into the following categories: Regional teaching days: Promote networking and sense of collegiality; Strengthen the community of practice; Provide inspiration for career development; Increase standards of training by increasing awareness of other learning environments; Increase quality of patient care by highlighting innovation and good practice; Empower trainees to deliver change.
Conclusions: Regional training days influence the learning climate of a postgraduate school in a variety of ways beyond curriculum delivery. Particular attention to optimising the learning climate must be paid when planning curriculum delivery programmes and regional teaching must be protected in order that the described benefits are maintained.
Take-home messages: Regional teaching positively influences the learning climate beyond curriculum delivery in a variety of important ways.

9FF/5
Impact of the anaesthesia specialist examination on trainee approaches to learning

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Background: Assessments should support trainee development towards specialist practice, encourage learning approaches promoting deep understanding, and engender habits for effective career-long learning. We explored the extent to which the Australian and New Zealand College of Anaesthetists (ANZCA) Final Exam (FEX) met these goals.
Summary of work: We surveyed all ANZCA advanced trainees using an established learning approaches inventory with additional questions on time spent, perceived value and how they studied for the four FEX components: MCQ, SAQ, Medical Viva, Anaesthetic viva.
Summary of results: We received 239 responses (35%). There were significant differences between perceived value and time spent on the four components, with more time spent on less valued components. Time and relevance were not aligned with the weighting or pass

rate for the individual components. Eighty per cent of trainees adopted predominantly deep learning approaches, but 20% adopted predominantly surface approaches. Written comments suggested the written ANZCA curriculum was seldom used to guide study, and different approaches were used for the four FEX components, with more superficial approaches for the MCQ, including rote learning, and deeper approaches with the SAQ.

Conclusions: The FEX was generally seen as relevant, encouraging deep learning approaches but this varied between components. This contrasts with reports suggesting learning approaches become more surface through undergraduate programs. Participants rarely used the written curriculum for learning.

Take-home messages: A high stakes exam in specialist training drives knowledge acquisition but the curriculum can become, by default, previous test items. Some assessment methods encourage deeper approaches and likely to promote skills for life-long learning.

9FF/6
Regional competency based study days for paediatric trainees in London: How trainee involvement can improve learning outcomes

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Background: The London School of Paediatrics developed regional study days specifically to address areas of the curriculum which are difficult to achieve in the local workplace. One of the challenges was to deliver specialty knowledge that adequately addresses the learning needs of attending trainees.

Summary of work: In response, we involved senior paediatric trainees to individually design all study days. Specialty trainees were invited to chair each day, recruit enthusiastic experts as speakers, identify important learning needs to be covered in workshops, and provide an overview about training in their specialty. Educational fellows coordinated each day, ensuring the learning needs of general paediatric trainees were adequately met.

Summary of results: Our regional study days are extremely popular with high attendance and satisfaction rates. The majority of attendees felt that the competencies covered were successfully tailored towards their learning needs. 75% perceived information on speciality training as useful. Trainees especially valued the opportunity to interact with senior trainees and experts in each specialty. As a result, many have been inspired to develop a special interest, and had confidence to initiate change of local practice. For

speciality trainees, the experience has provided a valuable opportunity to develop education and leadership skills.

Conclusions: Paediatric trainees play a pivotal role in improving the quality of regional study days by ensuring competencies are tailored to learning needs and offering junior trainees insight into each paediatric speciality.

Take-home messages: Engaging trainees in the development of training programmes enhances the quality of education provision and has direct impact on high quality education and patient care.

9FF/7
Resident Inspired Radiology Curriculum for Subspecialties (RICS): Piloting a Kolb learning based, integrated clinical-radiology program for gastroenterology

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Ted Xenodemetropoulos (McMaster University, Gastroenterology, Hamilton, Canada)
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Background: Radiology plays a critical role in the clinical care of many specialties including gastroenterology. Currently, radiology training for subspecialty learners is based on approaches radiologists employ to train core radiology trainees. However, subspecialty trainees are fundamentally different from radiology residents in knowledge, learning styles and needs, given their clinical background. Accordingly, teaching content and strategies must be adapted. As no standardized gastroenterology radiology curriculums exist in Canada, we have developed a novel radiology curriculum that can be utilized as a template for other subspecialties. Unique features include development by residents, direct application of the Kolb learning theory and integrated clinical-radiology modules.

Summary of work: A literature review of subspecialty radiology education was undertaken with subsequent theme analysis extracted. Gastroenterology fellows created the module with radiology and gastroenterology faculty support. Module objectives were vetted, Delphi style, by trainees and opinion experts. The pilot module was delivered to McMaster University gastroenterology trainees and evaluated using pre- and post-module surveys, content-based assessment and OSCE radiology sub-scores. The Kolb learning theory was applied to each module moving through diverging, assimilation, converging and accommodating learning styles in a practical manner. Modules address 4 core domains: 1) Creation of a motivating personal experience, 2) Development of new concepts, 3) Practical application

with immediate feedback, 4) Reflection, synthesis and extension. Sessions are co-facilitated by a clinical gastroenterologist and radiology faculty to integrate both learning spheres.
Summary of results: Preliminary data will be presented on trainee knowledge and attitudes.
Conclusions: This new radiology curriculum, authored by current resident-teachers, employs robust educational methodology and serves as a model for radiology curriculums in other specialties.
Take-home messages: This is a new radiology curriculum tailored to subspecialty trainees applies the Kolb learning theory in each module. This curriculum can serve as a model for other subspecialties.

9FF/8
Failure of high stakes postgraduate medical exams – what is the impact on trainees and how can they achieve success after multiple failures?

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Background: Progression through UK postgraduate medical training is dependent on passing high stakes postgraduate examinations. Multiple examination failures have significant impact on trainees and implications for workforce planning.
Summary of work: We contacted paediatrics trainees who had failed the MRCPCH clinical examination at least 3 times and had eventually passed. Participants completed structured interviews with full consent. 5 trainees were interviewed with questions focussed on performance, perceived problems, impact of failure and key changes enabling them to pass.
Summary of results: Trainees had taken the examination between 3 and 6 times and all had achieved significant improvements in their scores. All participants described significant impacts of multiple failure including reduced confidence, lack of credibility, stress and significant financial burden. Perceived reasons for failure included poor structure and presentation skills and trainees believed that improving these had been important. Significantly, all the participants identified that reviewing their feedback with a trusted senior and a mindset to being less defensive were key features that helped them to pass.
Conclusions: Our results show that trainees can pass exams after struggling. Multiple failures have significant impacts on trainees professionally and personally. Important features in eventual success included a change in mindset and reviewing feedback with a trusted senior. These could be used to develop support strategies for trainees struggling with exams.
Take-home messages: Multiple failure of high stakes postgraduate medical examinations has a significant impact on trainees. A change in mindset and reviewing

feedback with a trusted senior are key features in eventual success and we should support trainees in achieving this.

9FF/9
Using live internet polling during teaching sessions to answer multiple choice exam style questions for General Practice trainees

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Background: The written component of the MRCGP examination, the Applied Knowledge Test (AKT), is a three-hour machine-marked test of 200 questions. The first-attempt failure rate is 22%. Many candidates feel inadequately prepared, yet simple tests fail to engage both the individual and the group.
Summary of work: At each teaching session, live internet-based polls were run on two topics, with three to five questions on each. The expert resource taking each session then integrated the learning needs from the questions into the teaching. When each question is displayed, each trainee texts their answer by mobile phone. The server displays these live on-screen in chart form, showing how many choose each option, allowing the individual to target their learning and compare their answer with those of their peers. The instructor then immediately steers teaching into areas of weakness.
Summary of results: Polls were run for 31 students over 16 topics. Feedback was taken midway through the project to permit format adjustments and again at its conclusion. 27/31 trainees liked the technique, 2/31 did not and 2/31 were neutral. Comments were that it made teaching relevant to exams, it focused their minds, it showed areas needing work, it allowed them to compare themselves with others, it improved interaction, and they liked the instant feedback.
Conclusions: This dynamic e-learning approach allows students to compare themselves to their peers anonymously, with instant feedback in an enjoyable environment, with increased engagement, allowing the teaching session to be steered live towards areas of need.

9FF/10
General Practice Out of Programme Study Sessions

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Background: Seven trainees from Wessex had not demonstrated enough to obtain their General Practice

certificate of completion and were therefore placed out of programme for six months.

Summary of work: A bi-weekly study session was set up for these trainees to attend which was run by recently qualified GPs who were also educationalists. The programme included Clinical Skills Assessment (CSA) practice with feedback, presentations by GPs who had previously struggled with the CSA as well as careers advice.

Summary of results: After six months each of the trainees has continued to attend. It is perceived by the supervisors that they have all improved in their consultation skills. Some have gained a huge amount of insight into the purpose of the CSA.

Conclusions: This programme allowed the trainees to keep in touch with general practice. It also gave them the opportunity to meet with other colleagues in the same situation which psychologically has helped them. They are now back in programme and believe that the sessions have facilitated some continuity despite their unfortunate position.

Take-home messages: A regular supervised study session is helpful for trainees who are out of programme. It can help maintain continuity of practice as well as improve insight. Although extra funding is required for these sessions, the hope that is in the long run the outcome for the trainees will be favourable.

9FF/11
Using art to interpret clinical experience

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Background: The role of art in helping trainees to reflect on their learning and development is acknowledged, but poorly understood. An already over-crowded curriculum may emphasis the purely clinical nature of learning, and the opportunity to reflect on experience through other means may be limited. This innovative teaching session aimed to encourage foundation trainees to step outside the consulting room, and to reinterpret their clinical experiences through reflective writing about art.

Summary of work: A group of foundation trainees (n.5), their tutor (KT) and a researcher (SS) visited the Wellcome Gallery, London. Whilst there, trainees were encouraged to seek out works of art which resonated with a clinical encounter or experience, and to write a reflective piece about one. The group met again in a follow up focus group, during which they discussed their writing and its impact on them as trainees and doctors.

Summary of results: The reflective writing of the group collectively demonstrated engagement with themes commensurate with deeper levels of learning, the feelings, assumptions, beliefs and values of clinical practice. Extracts will be presented to illustrate the findings

Conclusions: The strength of this session was that it was not a specific and focused supervised learning event, rather it offered the freedom for participants to link and construct their reflections on clinical practice as suited them at the time. The responsibility for learning was shared amongst all participants, and it opened up new areas for discussion and learning.

9FF/12
Failure to secure a training post in an applicant's first choice deanery as a risk factor for difficulties during training

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Background: Trainees in difficulty present an increasing challenge. Recent emphasis has shifted from remedial activity to early identification of those at risk, combined with proactive intervention. Low recruitment scores have been associated with increased risk of difficulties. We examined this group more closely to identify other risk factors.

Summary of work: We identified 39 trainees who scored poorly in the UK national GP recruitment process. It was immediately obvious that a large proportion of these trainees (28) had not chosen to train in Wessex, having come to the deanery through the clearing process or recruitment round two. We then compared their outcomes with the 11 low-scorers who had applied directly to Wessex.

Summary of results: Every trainee recruited via clearing fell into the cohort of 39. The mean recruitment scores of the clearing group were not significantly different to those of the low-scorers who applied directly to Wessex. Clearing recruits were four times less likely to finish their training after three years, twice as likely to receive a training extension and more likely to resign or be released from training.

Conclusions: Accepting a training post in a deanery other than those applied to is a risk factor for difficulties during training, independently of a low recruitment score. These trainees are more likely to resign or fail to complete training than a trainee who did apply to Wessex.

Take-home messages: Clearing recruits are a high risk group who should be considered for intervention early. Clearing recruits may be social isolated or commuting long distances and may benefit from additional pastoral support.

9FF/13
Structured e-Assisted Handover Improves Patient Safety: a Better Training, Better Care Project

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Background: Effective clinical handover is essential at all levels of patient care. Change to shift-work patterns has placed a greater emphasis on the continuity of clinical information. It is a key priority established by the World Health Organisation and Royal College of Physicians (RCP), but handover skills are rarely taught to undergraduates or postgraduates.
Summary of work: At MCHT we introduced a structured handover, supported by validated training on task prioritisation, time management and effective handover with all trainees within the general medicine department. We simultaneously implemented an electronic handover system (Ascribe, UK) which captures all out of hours tasks and assists in allocating, tracking, and documenting completion of all tasks. We summarised task completion rates documented on the e-system. We assessed trainee attitudes to handover safety using the Safety Climate Questionnaire.
Summary of results: All handovers are easily auditable with a named, accountable individual allocated to each task. Handover task completion rates improved from 30.4% before intervention to 90.1% (relative benefit 2.96, p<0.0001). Trainee attitudes towards handover safety have improved significantly (p=0.0054). Improved trainee confidence was reflected in increased capacity to manage their out-of-hours' workload.
Conclusions: Formal, grade-specific handover training supplemented by e-assisted handover in a structured process has a positive impact on the rates of handover task completion. This reduces the risk patient deterioration being missed or important results not acted on.
Take-home messages: A structured handover supported by a formalised training program and assisted by electronic handover is managing, tracking and completing clinical tasks in an appropriate timescale.

9GG ePosters: Student Wellbeing
Location: North Hall, PCC

9GG/1
Sleep deprivation in Medical Students: Impact on Environment Academic Perception

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Background: Adequate sleep is necessary for well-being and is considered an indirect measure of quality of life.
Summary of work: We compared Epworth sleepiness scale (ESS) and Pittsburgh Sleep Quality Index (PSQI) with the Dundee Ready Education Environment Measure (DREEM). From 1,650 randomized students of 23 medical schools, was obtained 1,350 (81.8%) completed questionnaires. Data analysis was stratified in female and male students from first and second (group I), third and fourth (group II), and fifth and sixth (group III) undergraduate years of the Brazilian medical school.
Summary of results: ESS showed that 46.5% of the students present excessive daytime sleepiness (pathologic score > 10). There was a greater proportion of females showing pathologic scores than males (chi-square test, p<0.001). PSQI showed that 63.7% had poor quality of sleep (score > 5) and no difference between females and males. There was also no difference among the course years. Comparison among DREEM domains and ESS or PSQI scores showed negative associations, meaning that the students' perception improves with decreased sleepiness.
Discussion: This study revealed that a large proportion of medical students have poor sleep quality which may influence or be influenced by several components in the educational environment. It is somewhat surprisingly that sleepiness does not increase with medical school years.
Conclusions: Excessive daytime sleepiness, mostly in females, and poor quality of sleep occur in high number of students. Students' perception of the educational environment decreases with increasing sleepiness.
Take-home messages: It is a cause of concern that the lack of sleep of our students may lead to poor environment perception.

9GG/2
Psychological Support Group for Medical Students

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Background: Given the growing concern about the quality of life of medical students and the prevalence of psychological harassment suffered by students during medical education, which may relate to psychological disorders such as alcoholism, suicide and burnout, medical schools should be thinking about specific mental health promotion programs. These disorders may promote damage in student life interfering with self-care, professional career, interpersonal relationships and quality of service delivery to the community.
Summary of work: We developed an intervention project that aims to create room for reflection on the student´s experiences during medical training and foster social support and healthier lifestyles. Students are invited to attend a monthly meeting, lasting 90 minutes. The group is led by psychologists of the Student´s Support Service using methodologies that facilitate coping with demands and psychosocial suffering, grounded in systems thinking theory, communication theory and resilience.
Summary of results: At the end of the first year of project implementation we observed greater integration among students with significant expansion of their social support networks and higher incidence of self-care behaviors and resilience, identified by spontaneous search for individual assistance and greater flexibility before conflicts.
Conclusions: The results so far observed are motivators for continuing this project and emphasize the importance of implementing strategies for promotion and prevention in mental health in periods prior to development of the disease so that their effectiveness is maximized.
Take-home messages: Program promotion and prevention in mental health for students must be continuously offered during medical training.

9GG/3
Investigating the Reasons For Under Performance In Ethnic Minority Medical Students

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Pirashanthie Vivekananda-Schmidt (Medical Education, University of Sheffield, United Kingdom)

Background: It has been previously reported that ethnic minority students academically underperform compared to their white counterparts. This project aimed to identify whether amongst medical students, there is a relationship between ethnicity and the following factors: satisfaction with academic performance, sense of belonging and cultural influence.

Summary of work: An online questionnaire (quantitative and qualitative) was completed by 352 medical students from the University of Sheffield (70%), Keele University (21%) and London Universities (9%). Ethnic distribution was 73.3% Caucasians, 5.4% Mixed race and 21% Ethnic Minorities (EM).

Summary of results: EM were more dissatisfied with their academic performance (p<0.001) and less likely to feel they belonged to the medical community (p<0.05). Participants believed the causes for variations in performance were interplay of cultural influences, ethnic stereotyping, and communication skills. Regarding the ideal medical student's behavioural traits, Caucasian were more likely to choose confidence (p<0.05). Regarding what behavioural traits are emphasised during their upbringing, Caucasians chose extraversion (p<0.05), mixed race students openness to experience (p<0.05) and EM chose respectfulness (p<0.001). Students measured belonging using their relationships with other students and finding activities that met their interests within the medical school. Culture influenced behavioural traits and communication skills including accents and proficiency of English. These reinforced a stereotyping which was cited as having a possible negative impact on clinical experience/teaching for EM.

Conclusions: Clear differences exist between ethnicities in self-perceived satisfaction with academic performance, belonging and insight into characteristics important for their professional role. Further research should focus on better understanding of these differences and developing interventions to overcome them.

9GG/4
Drugs and vigil in health sciences students: cost of the academic performance

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Background: The academic activities of the Health Sciences students are highly demanding and competitive, so they often must change sleep hours and leisure by study time. In this scenario, the consumption of drugs stimulating the central nervous system (CNSSD) appears as a good alternative to maintain a good level of qualifications.

Summary of work: Objective: To evaluate the use of CNSSD by students majoring in Medicine and Dentistry. During the 2nd half of 2012, we designed a descriptive study (cross-sectional) based on the application of a structured questionnaire to 344 students majoring in Dentistry and Medicine, between the 2nd and 5th year, with an academic curriculum of 40 hours weekly. The study was approved by the Ethics Committee of the Universidad Andrés Bello. Only the entirely answered surveys were assessed. The results are shown as percentages with respect to the totals obtained.

Summary of results: Of the respondents, only 14% reported not consuming any substance in relation to their studies. 50% of respondents referred to consumption of energy drinks, 37.4% consume CNSSD and 14.9% anxiolytics. The main reason for consumption is maintaining wakefulness for increase in the hours of study (68.6%). Only 14.1% have medical indication. Despite the high number of individuals using any substance, only 46.7% said they often got the expected effect.

Conclusions: CNSSD consumption is common among students of Health Sciences, for keeping vigil in order to increase the hours of study.

Sources of funding: FIAC UAB1102

9GG/5
A study to explore perceptions of stress in UK medical students

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*(Presenter: **Steve Churchill,** University of Sheffield, Faculty of Medicine, Beech Hill Rd, Sheffield S10 2RX, United Kingdom)*

Background: Existing literature suggests that levels of stress are high in medical student population. Aim: Investigate medical student perceived (1) levels of stress, (2) causes of stress, and (3) coping strategies employed by the students.

Summary of work: Students from Sheffield, Nottingham, UCL, and Keele Medical Schools were invited to participate. Data collection was through an online questionnaire and three focus group interviews with one school. Analysis: Descriptive statistics and thematic analysis of free text and qualitative responses.

Summary of results: 332 students responded to the questionnaire, responses were qualified through the focus groups. 92.2% of participants self reported experiencing levels of stress that adversely affected their health. However, most viewed stress as normal, even a necessary part of medical training. The leading stressor was exams followed by feelings of inadequacy. The latter was largely attributed to competitiveness within the population and confidence issues that arose from this. Not being able to cope with stress was perceived as an admission of failure.

Conclusions: Medical students expect, accept, and often ignore stress; it is perceived to be the norm. Stress is a multifactorial issue, and academic pressures are a key

source. Stress is reported to have a significant impact on students' quality of life, health and academic ability.
Take-home messages: The self reported significant impact of stress on students' quality of life and ability mean that action is needed.
(Acknowledgements: Jill Thompson, Paul Bissell, Pirashanthie Vivekananda-Schmidt)

9GG/6
How to Improve Occupational Therapy Students' Social Skills: The Current Situations and Prospects in Tokyo, Japan

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Background: In Japan, most occupational therapy students are in their late teens and have little social and work experience. Meanwhile, Japanese seniors regard social manner as extremely important. Instructors may ask: Which social manners should students know before working on site? What kinds of situations can be most confusing for students to deal with? In many cases, students who venture into clinical training without much knowledge of social manner often fail to learn efficiently because they stumble over basic social exchange with senior patients.
Summary of work: The purpose of this research is to identify what students can do and what they cannot do so that instructors can help them go through clinical training without extra distraction. We created questionnaires about 12 specific social situations during clinical training, based on past experiences of 11 occupational therapy instructors from Tokyo Metropolitan University. 74 occupational therapists and 36 students answered the questionnaires, and we analyzed the data, using Mann-Whitney U test, $0.05<p$, PASW statistics 20.
Summary of results: Our results indicate that many students know appropriate manner on a theoretical level, but do not know exactly how to execute it in an actual situation. Borrowing from Benjamin Bloom's educational taxonomy, we can say that they recognize some specific knowledge but still have not acquired necessary skills and attitudes to carry it out.
Conclusions: Occupational therapy instructors are responsible to grasp how much students can do (instead of "know") and help them learn appropriate social manner before their clinical training.
Take-home messages: Frequent internal communication between instructors and students is the key to make clinical training successful.

9GG/7
Prevalence of needlestick injury and Hepatitis B vaccination status in Medical students in Maharat Nakhon Ratchasima Hospital, Thailand

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Background: Needlestick injuries are a risk for blood-borne infection such as Hepatitis B, Hepatitis C and Human Immunodeficiency Virus. This study aimed to determine prevalence of needlestick injuries and HBV status of medical students in Nakhonratchasima medical center, Thailand.
Summary of work: Retrospective study was performed between 1 October 2010 and 30 September 2012.
Summary of results: Thirty six medical students incurred needlestick injuries and prevalence of needlestick injuries were 7.4% (36/483 persons). Most of them (25/36, 69.4 %) were 6th year medical students. The event occurred at the frequency of 55.5% ward, 30.5% operating room and 14% emergency room. Suturing was the most common procedure causing NSI. Their reasons for the injuries were recklessness (25/36,69.4%), lack of skill (9/36,25.0%) and inappropriate equipment (2/36,5.6%). All of them already have immunity against HBV.
Conclusions: Needlestick injuries were common in medical students. NSI prevention should involve hygienic discipline, skill training and proper equipment provision, respectively, since vaccine can prevent only hepatitis B infection.
Take-home messages: Vaccine effectiveness is limited, therefore human precaution should be complementary.

9GG/8
Brazilian multicentric randomized study of depression and anxiety among medical students

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Background: Depression and anxiety symptoms in medical students can influence their health-related quality of life and performance in Medical School.
Summary of work: We performed a multicentric randomized cross-sectional study, including twenty-

three Medical Schools and 1350 (81,8%) medical students, using the Beck Depression Inventory (BDI) and State Trait Anxiety Inventory. Medical course was divided into three Groups: First (1st and 2nd years), Second (3th and 4th) and Third (5th and 6th).

Summary of results: Forty-one per cent of the students surveyed had depressive symptoms (BDI> 9). The high scores towards depressive symptoms were more frequent among female medical students (p<0,001). Fifty per cent of female medical students manifested depressive symptoms considering the three studied groups. Male scores were higher in the 3th and 4th years (chi-square=0.03). Mean values of State-Trait anxiety were 45 points, corresponding to moderate scores of anxiety. Females manifested higher anxiety scores than males (p<0,001). There was a positive relationship between levels of State (r=0,591, p<0.001) and Trait (r=0,718, p<0.001) anxiety and depression scores.

Conclusions: Our results showed a high prevalence of depression and anxiety symptoms among medical students in Brazil, particularly in females. There was a significant gender difference in the first and third group concerning depression scores. This difference was not observed in the middle years of Medical School because male scores were higher in these years.

Take-home messages: Medical educators must create opportunities to medical students for discussions about their mental and physical health.

9GG/9
Relationship between initial expectations and academic well-being in medical students of Chile

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Background: First year medical students not only face transition and must adapt to university entrance but in addition they must face high academic and personal demands. Actual research indicates that students can be damaged in an affective emotional level that can affect their psychological comfort influencing their academic performance. The aim of this study is to analyze the relationship between academic expectations and academic well-being, regarding high engagement and low academic burnout in students of the first year of medical schools in Chile.

Summary of work: The relationship between academic expectations that students present entering medical schools and the academic well-being they exhibit at the end of the academic semester was assessed in an intentional sample of 184 first year medical students from three Chilean universities, 98 (53,26%) men and 86 (46,74%) women. Academic Expectation Scale, Utrecht Work Engagement Scale Student Questionnaire (UWES-S-17) and Maslach Burnout Inventory (MBI HSS) were answered.

Summary of results: Students with higher levels of involvement and academic satisfaction at the end of the first academic semester are the ones that show higher expectations of the medical school, teachers and relationship with classmates. Additionally the ones that entered with higher academic expectations in each area showed higher personal accomplishment.

Conclusions: The results highlight the relationship existing between initial academic expectations and academic well-being in medical students after their first academic semester. This study may provide useful information about students' adaptation process to university.

Take-home messages: Medical students' academic well-being and expectation is a useful indicator of academic success in the first years of university.
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9GG/10
Variations of subjective and physiological stress and clinical reasoning according to extrinsic and intrinsic stressors

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Jean-Marie Castillo (University of Nantes, Family Medicine, Nantes, France)
Angelique Bonnaud (University of Nantes, CHU Nantes, Social Sciences, Nantes, France)
Vicki Leblanc (University of Toronto, Wilson Center for research in medical education, Toronto, Canada)

Background: The effect of acute stress on medical clinical performance is equivocal. Indeed, both enhancements and impairments have been reported, especially as a function of the intensity of response to stress. According to literature, peripheral or extrinsic stressors (ES) and task-contingent or intrinsic stressors (IS) can be distinguished within a stressful situation. The objective of this study was to assess the impact of those different kinds of stressors on medical clinical performance.

Summary of work: A prospective, randomized, cross over study was undertaken with year 3 medical students conducting two medical consultations with simulated patients. Students have been randomly assigned to four groups according to the presence and the order of ES

and IS at consultation 1 and 2. Subjective and physiological stress responses have been assessed before and after both consultations. As dimensions of clinical performance clinical abilities in performing a clinical examination, communications skills, diagnostic accuracy and diagnostic argumentation have been assessed.

Summary of results: Subjective responses to stress assessed with the Spielberger and Tomaka questionnaires were higher in case of IS: (43.5 vs. 40.9 F=6.5; p=.01 and 1.5 vs. 1.0 p<.0001, respectively) while ES did not modify stress measures. Having the scenario including intrinsic stressors at the first consultation increased salivary cortisols in both consultations (7.3 ng/mL +/- 3.6 vs 5.9 ng/mL +/-3.3, p<.0001). Globally, markers of clinical performance were enhanced in presence of ES and decreased in presence of IS.

Conclusions: ES and IS have different effect on stress and opposite impact on clinical performance.

Take-home messages: ES and IS have different effect on stress and opposite impact on clinical performance.

9GG/11
Specialty Selection Satisfaction and Regret Among Medical School Postgraduates At King Abdulaziz University

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Hussam Daghistani (King Abdulaziz University, Faculty of Medicine, Medical Education, Jeddah, Saudi Arabia)
Basem El-Deek (King Abdulaziz University, Faculty of Medicine, Medical Education, Jeddah, Saudi Arabia)

Background: The field of medicine has wide options of specialties, where specialty selection is a life-altering decision that plays a crucial role in career satisfaction, and in turn patient-care. This study explores significant factors regarding specialty selection satisfaction and regret from the perspective of postgraduates in their medical field.

Summary of work: Data analysis of a cross sectional study was carried out on a sample of 172 medical school postgraduates working at King Abdulaziz University. A questionnaire was used to conduct the study.

Summary of results: From the data obtained, there is a statistically significant (p<0.05) association between specialty selection satisfaction and specialty selection regret. The analysis showed that 11% of the sample regret their choice of specialty. The analysis also showed that the level of satisfaction increases as the status of the postgraduates increase. Furthermore, nine factors were identified to be statistically significant with specialty selection satisfaction; income, high length of training, vast options of subspecialties, interesting and exciting field, high level of education depth, research opportunities, reasonable work hours, stress and employment opportunities. However, only three of those factors (income, interesting and exciting field, and

employment opportunities) were statistically significant to the point of specialty selection regret.

Conclusions: The results of the present study identify some of the key factors that have a potential impact on specialty satisfaction and regret among medical school postgraduates.

Take-home messages: The study highlights the importance of career counselling. Further work may involve investigating alternative hospitals, the perspective of medical students in various specialties, together with exploring potential ways to solve the problem.

SESSION 10: Simultaneous Sessions
Wednesday 28 August: 0830-1015

10A Symposium: Changing the Culture of Learner Evaluation: Moving from Likert Scales to Narrative Description
Location: Congress Hall, PCC

Janice L Hanson (University of Colorado Denver, School of Medicine, USA)
J Lindsey Lane (University of Colorado School of Medicine, Aurora, Colorado, USA)
Ellie Hamburger (The George Washington University School of Medicine and Health Sciences, Washington, DC, USA)
Paul Hemmer (Department of Medicine, Uniformed Services University of the Health Sciences, Bethesda, USA)
Marjan Govaerts (Maastricht University, Dept. of Educational Development and Research, Maastricht, the Netherlands)

This symposium will confront the implicit assumption that "measurement" is preferable to "description" when assessing and evaluating learners in medical education. Symposium presenters will discuss why written narrative descriptions of learners' performance may provide a more useful and valid foundation for assessment and evaluation than Likert-scale ratings and percentage scores from observation checklists and examinations. Presentations will also address practical approaches to eliciting useful narratives and explore the challenges of changing a culture of evaluation that has relied on numbers for most evaluation data. Participants will be invited into the lively conversation about the issues that emerge.

10B Symposium: Becoming a doctor: the importance of on-the-job learning
Location: Meeting Hall I, PCC

Trudie Roberts (Leeds Institute of Medical Education, University of Leeds, UK)
Cees van der Vleuten (Maastricht University, the Netherlands) and colleagues

A substantial portion of medical education takes place in the clinical workplace. Recent research offers new insights into the possibilities and limitations of on-the-job learning. Experts from various parts of the world will share their insights and discuss important topics in this type of learning, such as feedback, assessment and mentoring. The panel of speakers and the audience will engage in a discussion of the possibilities and limitations of learning on the job.

10C Short Communications: Games and eLearning

Location: Panorama, PCC

10C/1

Serious gaming: The development of an interactive computer game for learning chest drain insertion

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Nicolas Mendoza (Universidad de los Andes, Systems Engineering, Bogota, Colombia)
David Delgadillo (Universidad de los Andes, Facultad de Medicina, Bogota, Colombia)
Pablo Figueroa (Universidad de los Andes, Systems Engineering, Bogota, Colombia)

Background: Working hour restrictions, reduced patient contact and exposure to procedures, diminish students' chances to acquire experience in tube thoracostomy (chest drain insertion). Chest drain insertion (CDI) is a frequent intervention junior doctors and interns are required to perform in some countries. Existing simulators are mannequins only for the surgical procedure itself, with limited practice of all steps and without aspects around preparation and care, which are competencies involved.   A computer-based, interactive simulator could give a significant initial knowledge in CDI, before students perform the procedure. We present the process of creation of a serious game to teach a basic surgical procedure.
Summary of work: To create an attractive and engaging game to teach CDI, the process was: define the procedure steps (expert); interview residents, interns and students to find difficulties and expectations in the learning process of CDI; creation of an algorithm around milestones of CDI. Once these elements were defined, a software environment and imaging design was developed.
Summary of results: Students and experts have shown interest. Current development has provided initial images and an environment to place the game in an interactive context, including these steps: diagnostic, equipment and patient preparation, intervention performance and patient care afterwards. Usability tests for initial designs are in process.
Conclusions: Learning outcomes should guide the creation of the game contents, steps and rewards. Students show interest in learning using a familiar environment. The challenge is to make it enjoyable.
Take-home messages: Games represent alternative methods of teaching using attractive environments that promote repetition and construction of increasingly complex learning.

10C/2

Game for training in primary health care took place in a 3D virtual city

Alessandra Dahmer (Federal University of Health Sciences, Education Information and Health, Porto Alegre, Brazil)
Maria Eugenia Pinto (Federal University of Health Sciences, Department of Public Health, Porto Alegre, Brazil)
Gabriele Dias (Federal University of Health Sciences, Education Information and Health, Porto Alegre, Brazil)
Rodrigo Tubelo (Federal University of Rio Grande do Sul, Department of Public Health, Sarmento Leite, 245, José Affonso Ely, 52, Porto Alegre 91787810, Brazil)

Background: Teaching methodologies have usually used new technologies in order to improve the quality of learning. The UFCSPA/UNASUS developed a game, based on the clinic of the Primary Health Care, in order to help in the permanent process of education of health professionals.
Summary of work: The aim of this study was the development of a game using simulation of the clinical cases which took place in a PHC clinic in order to contribute to the learning process of health professionalss. The use of a virtual fictitious city in 3D (Santa Fé), located in the Brazilian countryside, made in the Software Google Sketchup Pro 8, was part of the creation process of the Game. Clinical cases made in the XMind 2012 tool were adapted for the participation of different professions that are on the course (physicians, nurses, dentists). E_Adventure was the tool used in the development of the game.
Summary of results: The transformation of a fictitious city for the third dimension was able to simulate with reality a Brazilian countryside. The development of the game showed the interactivity of the student with the virtual city, emphasizing the learning in an entertainment way.
Conclusions: The creation of a game took place in a virtual city, simulating the routine of the physicians, nurses and dentists and allowed the transmission of knowledge in a longitudinal and interactive way.
Take-home messages: The creation of a serious game is an important advance for the qualification of the course offered to the health professionals.

10C/3

Medical students repurpose and evaluate serious games, e-OSCEs and virtual patients

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Panagiotis Bamidis (Aristotle University of Thessaloniki, School of Medicine, PO Box 323, Thessaloniki 54124, Greece)

Background: Contemporary medical education exhibits a wide variety of learning resources. Serious games, OSCEs in electronic format and virtual patients are some

examples of modern learning content items used in the community of medical education.

Summary of work: During the last few academic years, representative samples of the previously mentioned types of learning content items were designed and implemented in the educational activities of Aristotle University of Thessaloniki. They were widely used, re-used and repurposed from medical students, as an attempt to update the medical curriculum. The final step of the procedure was the students' evaluation of the three types of learning resources.

Summary of results: Medical students, randomly divided in three groups, used and reused, repurposed and evaluated: 1) a serious game, 2) an e-OSCE and 3) a serious game, among all these that are used in the medical curriculum of AUTH. The SUS score questionnaire was used as an evaluation tool of the usability of these three different systems and open ended questions were used complementary in the final evaluation process.

Conclusions: The results of the evaluation demonstrate that medical students are attracted to modern types of learning resources. The usability of all of the three systems was graded with a high usability score and students showed a great willing of involvement in the re-design and implementation process.

Take-home messages: Serious games, e-OSCEs or virtual patients? Every interactive type of modern learning resources presents a great challenge for students; to play, train, repurpose and reuse.

10C/4
Assessment of Psychiatry Clinical Simulation Teaching Modules by Student Surveys

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Adriana Foster (Georgia Regents University, Psychiatry, Augusta, Georgia, United States)
Teresa Johnson (University of Central Florida College of Medicine, Medical Education, Orlando, Florida, United States)

Background: A Clinical Simulation Initiative by the Association of Directors of Medical Student Educators in Psychiatry has developed a free database of online psychiatry teaching modules that include videos of simulated patient cases. We now aim to obtain preliminary data on student satisfaction and the modules' impact on students' confidence in disorder-specific knowledge, diagnosis, and treatment, and assess the internal consistency of the student surveys evaluating module quality and effectiveness.

Summary of work: Surveys used in a 2011-12 pilot study were revised based on statistician and focus group feedback. Survey items include educational value, general feedback, and student confidence in disorder-specific knowledge, diagnosis, and treatment. Rating items are measured on a 5-point Likert-type scale, where 1=Strongly Disagree and 5=Strongly Agree. Comparisons between pre- and post-module student

confidence ratings were assessed using non-parametric Wilcoxon signed rank tests.

Summary of results: Preliminary 2012-13 data (bipolar disorder, N=75; personality disorders, N=44; dementia, N=37) yielded mean student ratings of 3.9-4.6 on items measuring module quality and effectiveness. All student confidence ratings were significantly higher post-module as compared to pre-module for all modules (p<0.001). Five of the six pre- and post-module student surveys demonstrated moderate to strong internal consistency (Cronbach's alpha=0.71–0.93).

Conclusions: Initial data from the larger, ongoing 2012-13 study generally support the reliability of the survey instruments, and demonstrate student satisfaction with the modules and positive impact on students' confidence in disorder-specific knowledge, diagnosis, and treatment.

Take-home messages: Preliminary results are promising for: 1) student satisfaction and confidence in knowledge gained with these clinical simulation teaching modules, and 2) internal consistency of these survey instruments, which could be adapted to collect feedback about similar teaching tools.

10C/5
The Prescribing Optimization Method In The E-Learning Environment Pscribe Is An Effective Method For Medical Students' Education On Pharmacotherapy

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PAF Jansen (UMC Utrecht, Department of Geriatric Medicine and Expertise Centre Pharmacotherapy in Old Persons, Utrecht, Netherlands)

Background: Although junior doctors feel unprepared for prescribing, evidence based medical education on the topic is lacking. The Prescribing Optimization Method (POM) is proven to be effective to review polypharmacy by general physicians. Aim: to study the effectiveness of the POM in final year medical students in the e-learning environment Pscribe.

Summary of work: In a multicenter randomized pre- and posttest design the POM was studied. All were asked to optimize the pharmacotherapy for two cases. All students optimized the first case without any method. For the second case half of the students were randomized for the POM, half for the control group.

Within the intervention group half received a non-e-learning variant, half received the e-learning program Pscribe. The medication lists as proposed by the students were compared with consensus from an expert panel. The control and intervention group as well as the e-learning and non-e-learning group were compared with a repeated measurement linear model with t-test as post-hoc analyses.

Summary of results: 103 students were included: 51 from Utrecht, 52 from Amsterdam (68% female, median age 25 (23-40). With use of the POM pharmacotherapy improved: 33% more correct decisions (p 0.00) and 30% less potentially harmful decisions (p 0.00). No differences were found between the e-learning and non-e-learning group.

Conclusions: Use of the POM increases correct decisions and significant decreases potentially harmful decisions. Above, the method was proven to be effective without instruction and can therefore be easily implemented in pharmacotherapy education of medical students.

Take-home messages: The POM is effective in medical students' education without instructions.

10C/6

Malnutrition eLearning and social media join forces to build global malnutrition management capacity

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Trevor Pickup (University of Southampton, Faculty of Medicine, MP 820, Level B, Faculty of Medicine, Southampton General Hospital, Tremona Road, Southampton SO16 6YD, United Kingdom)

Background: Technological advances, particularly the Internet, have revolutionised medical education globally, increasing access to learning/training opportunities that were not available previously. Challenges are students and health professionals identifying credible and effective learning resources and educational institutions raising awareness about their resources among potential users.

Summary of work: The University of Southampton and International Malnutrition Task Force developed a high quality eLearning course, Malnutrition eLearning, to meet the global demands for malnutrition management capacity building among students and health professionals. After failing to achieve a large-scale uptake of the course, a social media campaign was launched in October 2012. To evaluate the course and Social Media campaign, a questionnaire and assessment of user enrolment records were conducted.

Summary of results: From October 2012 to February 2013 1,771 people from 121 countries, ranging from doctors, nutritionists, academics, government staff to students, enrolled on the course. Healthcare professionals' enrolment for their Continuing Professional Development (CPD) was far greater than students', although student numbers increased gradually. 141 from 38 countries participated in the questionnaire. 92% found the course helpful or very

helpful. 55% became aware of it through LinkedIn and Facebook (38%) and Google (17%).

Conclusions: Malnutrition eLearning, promoted by Social Media, has enabled health professionals, working across a range of roles globally, to get malnutrition management training. eLearning and Social Media together showed potential to achieve global health improvement, contributing to health professionals' CPD.

Take-home messages: eLearning can make significant impact on global capacity building, and Social Media is a powerful method, bringing users and available training together, outperforming other communication methods.

10D Short Communications: Empathy
Location: Meeting Hall IV, PCC

10D/1
Empathy perception and skills differ among medical students: results from a cross-sectional comparative study

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Background: Empathy is a recognized key ability for medical practice. Early development of empathy skills during medical studies strengthens this ability. However, the relationship between valuing empathy and being empathic is unknown. Aims: compare perception and skills of empathy among 1st-year medical students, and analyze contributions of personal characteristics, learning approaches and stress coping to empathy.
Summary of work: 180 students completed validated questionnaires assessing empathy perception (Jefferson Scale of Empathy, JSE) and empathy skills (Empathy Quotient, EQ); standardized questionnaires assessed personality (Big Five NEO), learning approaches (SPQ) and stress coping (CISS). Pearson's correlations compared JSE and EQ scores. Multivariate linear regressions analyzed students' characteristics related to JSE or EQ.
Summary of results: Correlation between JSE and EQ was 0.404 (p<0.0001). Overall, scores were 108.6±10.4 (78% of JSE max score=140) and 51.2±5.6 (64% of EQ max score=80) with significant gender differences. Regression models (r2=0.291 for JSE and r2=0.364 for EQ) showed that gender, NEO-openness and NEO-agreeableness (positive), and NEO-neuroticism (negative) correlated similarly and significantly with JSE and EQ. Stress coping by emotion (p=0.025) and distraction (p=0.045) correlated with JSE, whereas social direction (p=0.004) with EQ. No significant correlations were found between empathy scores and learning approaches (surface or deep). Gender specificities partly explaining the observed results will be presented.
Conclusions: First-year medical students had fair scores on perceived empathy, but lower scores on empathy skills. Correlation between JSE and EQ was moderate, underlining differences between instruments which merit to be taken into account when assessing students' empathy capacity.
Take-home messages: Perceived empathy value is higher than empathy skills among junior medical students.

10D/2
Variation of empathy in a cohort of medical students and the relationship with their value profiles. Andrés Bello University, Viña del Mar, Chile

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Hernán Borja (Universidad Andrés Bello, Escuela de Medicina, Viña del Mar, Chile)
Alberto Caro (Universidad Andrés Bello, Escuela de Medicina, Viña del Mar, Chile)
Gabriel Perat (Universidad Andrés Bello, Escuela de Medicina, Viña del Mar, Chile)
Camila Pérez de Arce (Universidad Andrés Bello, Escuela de Medicina, Viña del Mar, Chile)

Background: Empathy is one of the main features that a physician must develop.
Summary of work: Objective: To compare the level of empathic orientation that 3rd year medical students have in the beginning and by the end of a clinical course. To establish whether the value profile is in correlation with the level of empathic orientation or not. A cohort study was performed, 32 third-year medical students (18 males and 14 females). In the beginning of the investigation empathic orientation was measured by utilizing Jefferson scale and the value profile was established by using Schwartz's value inventory. At the end of the course, after 4 months, Jefferson scale was applied again. To analyze the data, Student's t-test was used as well as Pearson correlation.
Summary of results: There was a slight diminution in global empathy and more specifically in "compassionate care" component. On the other hand, there was a slight increase in perspective taking and "standing in the patient's shoes", though these differences were not significant statistically (p>0.05). Women showed means that were slightly higher than men's in global measurement and in all three components, even though these differences were not statistically significant either (p>0.05).
Conclusions: In this study group, no significant changes in the empathic orientation were found. There were neither differences in gender nor correlation with the value profile.
Take-home messages: It is necessary to continue carrying out this study after the 4th or 5th year of medicine studies is finished, using Jefferson scale to verify whether these tendencies that were found become significant in the long term.

10D/3
"It is good to be a doctor": preserving empathy through a positive look into the practice of medicine

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Eloisa Celeri (UNICAMP, Psychiatry, Campinas, Brazil)
Marco Antonio Carvalho Filho (UNICAMP, Emergency, Campinas, Brazil)

Background: Recent studies have demonstrated that undergraduate medical students typically undergo a loss of empathy during medical school. The hidden curriculum, embodied mainly by negative role models, can be held liable for the contrast between medicine as imagined by the student and the reality he or she encounters and experiences.
Summary of work: Sixty-five first-year medical students of 2012 participated in a curricular course with weekly meetings over the course of 4 months. Several activities were proposed, with the aim of introducing students to the reality of medical practice and the doctor-patient relationship; these included conversations with patients and experienced physicians, supervised visits to the emergency room and intensive care unit with selected physicians, and theatrical performances portraying caricatures of inadequate consultations. Students' empathy levels were evaluated by the Jefferson Scale of Physician Empathy (JSPE) before and after the curricular course.
Summary of results: The pretest JSPE scores were 119.4 and increased to 123.0 after the intervention (p<0.001). The increase was greater (9.4 points) among students with lower initial JSPE scores, while students with higher initial scores had more modest increases (1.4 points).
Conclusions: These results suggest that early curricular interventions could prevent loss of empathy through a positive introduction to the reality of medical practice.
Take-home messages: Activities that present the students with a positive view of the practice of medicine and offer interaction with positive role models should be inserted early into the medical school curriculum.

10D/4
Empathy among medical students: results from a Brazilian multicentric randomized study

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Patricia Tempski (School of Medicine of the University of Sao Paulo, Center for Development of Medical Education, Sao Paulo, Brazil)

Background: Empathy is an essential skill to be developed in the context of medical professionalism. We aimed to assess empathy among randomly selected students from 23 Brazilian medical schools and to determine its association with burnout.
Summary of work: Multicentric study with 1,350 randomized medical students from all years of training. Participants answered to the Interpersonal Reactivity Index and the Maslach Burnout Inventory in an electronic survey platform. We compared empathy according to gender and year of medical school (grouped as follows: G1 – first and second years; G2 – third and fourth years; G3 – fifth and sixth years). We also correlated empathy with burnout.
Summary of results: Response rate was 81.2% (n=1,350). Empathic concern (EC) and Personal Distress (PD) scores were higher among female students (p<0.01). G3 students had lower EC scores than G1 students and lower distress scores than G1 and G2 students (p<0.01). Perspective Taking (PT) scores did not differ according to year of medical training (p>0.05). PT scores were correlated to depersonalization (r=-0.3) and to personal accomplishment (r=0.3) (p<0.001). There was a correlation between: (1) PD and personal accomplishment scores (r=-0.3); (2) EC and depersonalization scores (r=-0.3) (p<0.001). Discussion: Female students had higher emotion-related empathic skills, but they also showed more distress than their male counterparts. Contrary to expected, cognitive-related skills did not differ by year of medical training.
Conclusions: Female students showed higher empathic skills than males. There was an inverse correlation between empathy and burnout.
Take-home messages: Medical educators should plan strategies to foster empathy and students' well being within medical curriculum.

10D/5
Measure Empathy in Medical Students, differences by gender and level of medical education: An identification of a taxonomy of students

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Mário Raposo (University of Beira Interior, Management and Economic Department/NECE, Covilhã, Portugal)
Rodrigues Paulo (University of Beira Interior, Psychology and Education Department, Covilhã, Portugal)

Background: Empathy is the mediating role of the physician-patient relationship. Through this process the practitioner seeks to understand the patient's frame of reference and also to establish a relationship of openness, mutual respect, trust and deep understanding.
Summary of work: Analyze the perceptions of medical students about the importance of empathy in the doctor-patient relationship and identify a taxonomy of students based on their perceptions of empathy. A sample of 208 medical students answered to the Jefferson Scale of Physician Empathy –Student

Portuguese Version. A Principal Components Analysis with varimax rotation was used to identify the number and compositions of emerged factors. A cluster analysis identified different groups of students based on the dimensions of empathy.

Summary of results: Statistically significant differences between genders are identified. Empathy increases over the course but without statistically significant differences. Six factors emerged from factor analysis and three of them are empathy dimensions found on other studies: "perspective taking", "compassionate care" and "standing in the patient's shoes". Cluster analysis divided the students in five groups, according to the dimensions of empathy identified.

Conclusions: As students progress in the course there is a greater appreciation of empathy and women when compared with men, show higher values of empathy.

10E Research Papers: Education in the Clinical Context 2
Location: Meeting Hall V, PCC

10E/1
Exploring how general surgical interns contribute to student clerkship learning

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Introduction: Surgical disciplines place a distinct emphasis on apprenticeship-style teaching and training of junior colleagues and medical students. Accordingly, surgical residents and interns are recognised as important student preceptor but there is limited understanding of how they contribute to student workplace learning. A mixed-methods study was therefore conducted to explore contributions made by general surgical interns to student clerkship learning.
Methods: The study involved two focus groups in June and August 2011 and the construction and distribution of a questionnaire. Focus groups consisted separately of volunteer general surgical interns and Year 4 students they had interacted with during clerkships. Utilising a qualitative analysis system, focus group transcripts were coded to generate themes. These were used to guide construction of a questionnaire distributed to a Year 4 class in September 2011. Questionnaire data were analysed using descriptive statistics, factor analysis, and Pearson correlation analysis.
Results: Focus groups were participated by six interns and five students. Intern contributions to student learning could be classified into four distinct roles: physician, supervisor, teacher, and person. Eighty-five (57%) questionnaires were returned. Interns typically interacted with students 5-6 times per week for 1-2 hours per day in surgical wards and emergency departments. Most common learning topics were interpretation of investigations (laboratory-based and radiological), bedside procedures, and administrative processes. While residents and attending surgeons were appreciated for clinical knowledge, experience, and enthusiasm for surgery, interns were appreciated for approachability, friendliness, and ability to relate to students. Interns help students integrate into the surgical team and elevated their anxiety. Achieving these tasks correlated to clerkship enjoyment (r = 0.72 – 0.88; p<0.001).
Discussion and Conclusion: There are several reasons why intern personalities and preceptorship attitudes are significant to student learning. Firstly, after the familiar territory of preclinical learning, hospital environments are foreign and confusing making this transition a stressful time for students [1]. Secondly, students commonly feel as if they are burdens to the surgical service [2]. By being supportive individuals, interns impact student learning without necessarily imparting clinical knowledge and skills. When interns take an interest in students, orient them, and legitimise their

presence, it creates a sense of belonging that enhances learning [3]. As demonstrated, integrating students into the surgical team is one of the surgical interns' most crucial roles and can be effectively achieved by delegating clinical tasks to students. The concept is summarised by Egan & Jaye's model of Community of Clinical Practice (CoCP) [4]. Based on Wenger's model of 'communities of practice' and learning through social interaction and legitimate participation [5]. CoCP represents the cluster of healthcare professionals formed around the patient, united by a shared purpose of patient care. To optimise learning, students need to be integrated into the CoCP where they are exposed to actual clinical practice. The current study suggests that interns are at the centre of this process. In conclusion, surgical interns can impact student learning by demonstrating favourable interpersonal skills and attitudes. They also facilitate integration of students into the surgical team and this correlates to reduced student anxiety and improved clerkship enjoyment. These findings are important when preparing interns for clinical preceptorship.

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10E/2
Clinical reasoning difficulties: A taxonomy for clinical teachers

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Introduction: Clinical reasoning is the cornerstone of medical practice. Most errors of clinical reasoning are not linked to gross incompetence or lack of knowledge but rather to the vulnerability of clinicians' thinking in the real world of clinical practice. Clinical reasoning difficulties have a variety of root causes which need to be differentiated if tailored remediation strategies are to be designed (1). Our study aimed to identify and describe the most common clinical reasoning difficulties as they present in residents' patient encounters, case summaries or medical notes. We also sought to develop

a Guide to support medical teachers' process of educational diagnosis and elaboration of a remediation plan.

Methods: Our research is situated in a socioconstructivist paradigm where the processes and then, the Guide, were co-constructed with clinical teachers involved at every step. We chose qualitative methodology, specifically participatory action research as defined by Kemmis and McTaggart. For these authors, participatory action research is a process of development carried out collaboratively by a group of people interested in changing practice in their setting (2). We chose family medicine residency as our setting because it is one of the specialties in which diagnostic uncertainty and the likelihood of missing or delaying diagnosis are most evident (3). We trained a group of family doctors involved in clinical education at the Department of Family Medicine and Emergency Medicine of Université de Montréal. Eight three-hour sessions were held between April and August 2009, each representing a reflective and iterative cycle (reflection and elaboration – experimentation and observation in the clinical setting – data analysis, reflection and modification – experimentation and observation, etc), until data saturation was reached. Our findings were tested and validated on an individual and collective basis with clinical teachers from different specialties in medicine and other health disciplines.

Results: We uncovered five main categories of clinical reasoning difficulties. For each difficulty we identified: indicators of these difficulties as they present in clinical supervision, examples of questions aimed at eliciting learners' clinical reasoning, explanatory hypotheses as to the root causes of the difficulty, and suggestions for remediation strategies tailored to each specific difficulty. The proposed concrete remediation strategies are based on principles of cognitive psychology and reflective practice. These findings were assembled and organized in a guide for clinical educators that will be presented to the participants.

Discussion and Conclusion: We believe that the prototypical difficulties described in this Guide will help clinical teachers develop their educational scripts about clinical reasoning difficulties and facilitate their identification and the enforcement of day to day remediation strategies, even in an office setting with multiple competing demands on physician time and thinking. This research contributes to a more precise educational diagnosis of the difficulties that occur during the development of clinical reasoning. By proposing this taxonomy and educational diagnostic strategy, we hope to assist clinical educators in detecting and identifying these difficulties during clinical supervision and facilitate the provision of remediation.

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10E/3
Rethinking clinical placements – not too much work!

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Introduction: To date, problems related to clinical experience and practice have been discussed in terms of the "theory-practice gap" and attributed to a lack of "preparedness" of individual students (for examples see Berridge et al., 2007; Matheson et al., 2010). Solutions have focussed on better preparation and more "high fidelity" simulation, which are dependent on conceptual frameworks which cannot fully account for the complexities of clinical practice (Kilminster et al., 2011). We are working to develop more nuanced and detailed understandings about learning in clinical settings which can inform pre-service health professionals' education and workplace practices. We are currently undertaking a series of workplace learning projects with the following research questions as a starting point: (1) How do students' participate in clinical settings? (2) How do students understand their participation in clinical settings? (3) How do other healthcare team members understand students' participation in clinical settings?

Methods: This paper is based on research from two linked projects undertaken in the previous two years. The first project explored healthcare students' early clinical placement experiences and the second focussed on final year healthcare students' experiences of interprofessional work and understandings of professional roles and identities. In both projects, individual interviews were undertaken with healthcare students about their clinical placements (fifty-five students from medicine, nursing, and a range of allied health courses); the first project also included interviews with nine medicine, ten nursing, and two audiology educators. Interview responses were transcribed, read repeatedly, and interpreted using current practice-based understandings of workplace learning, which link objects, tools, texts, and bodies in webs of action (Fenwick et al., 2011).

Results: Healthcare students and educators made distinctions between aspects of clinical placements which they regarded as "learning" and aspects which they dismissed as "work". Learning was reported to occur when students were working with senior members of their own professions, when they were performing "specialised" tasks, when their participation was assessed or "signed off", or when they were taught away from patients. Students indicated that they were "working" when they worked with staff members who they perceived as low in status, when they were performing "basic care" tasks, or when an assessment opportunity was not immediately apparent. Distinctions between learning and work were most evident among

nursing students, who are expected to be "supernumerary" in clinical settings in the United Kingdom.

Discussion and Conclusion: Students' participation in clinical settings is generally understood in fragmentary ways and in accordance with individualistic assumptions about knowledge and practice. A separation of "learning" and "work" remains despite significant public concern about the quality of patient care, including the "basic care" practices identified as "work" in our study. We argue that the practices that are often dismissed as work provide valuable learning experiences in working with others, including staff, patients, and family members. All of students' participation in clinical settings should be understood as practice, which contributes to high quality patient care. Placement design and delivery should be informed by these broader conceptualisations of clinical placement learning, rather than a narrow focus on a specific set of skills.

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10E/4

The effect of clerkship rotations on discipline-specific knowledge acquisition and retention

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Introduction: During clerkships, students learn through applying knowledge and skills and participating in practice [1,2].To facilitate student participation, longer rotations are recommended [2]. Implementing longer rotations may come at the expense of the number of disciplines students rotate through. This may affect students' knowledge about disciplines they do not rotate through, which, in turn, may hamper expertise development [3]. We investigated (1) whether rotating through clerkships affects students' discipline-specific declarative knowledge and (2) how this knowledge changes over time after the rotation.

Methods: We included all 189 students who started their 3-year clinical phase at the University Medical Center Groningen in September 2007. During their clinical phase, discipline-specific knowledge was measured twelve times using progress tests. Each progress test contains a fixed number of questions per discipline. During the first two years students rotated through 14 clerkships with a duration of 4-5 weeks. The third year consisted of a scientific and a clinical elective. We included five disciplines: family practice, gynaecology, neurology, paediatrics, psychiatry. For each discipline we determined when students rotated through it. For our analyses, we used a multilevel structure with questions nested in test moments, which, in turn, are nested in students. First, we used multilevel logistic regression comparing the odds that students would answer a question about the discipline correctly before, during and after the rotation. Then we selected all questions students had filled out after their rotation and analyzed the influence of time passed since the end of the rotation on the odds that students would answer a question about the discipline correctly. In both regressions we controlled for question difficulty, gender, age and how long a student had been in the clinical phase.

Results: For each discipline, except family practice, the odds that students would answer a discipline-specific question correctly during and after the rotation were 1.33 to 2.77 times higher than before the rotation(p<0.01). For family practice the odds during a rotation did not differ significantly from the odds before it, whereas the odds after the rotation were significantly lower (odds ratio=0.84; p<0.001). After the rotation, the odds to answer a question correctly were significantly lower than during the rotation for all disciplines (odds ratio between 0.60 and 0.75; p<0.01) except paediatrics. After having finished the rotation, students' odds to answer a question correctly decreased significantly by 1-3% per month for neurology, paediatrics and gynaecology (p<0.01). No significant decrease over time was found for psychiatry and family practice.

Discussion and Conclusion: Clerkship rotations have a positive effect on students' discipline-specific declarative knowledge. That we found no similar effect for family practice may be related to the broadness of the discipline. Discipline-specific knowledge seems to be retained, even though we found a slight decline in three out of five disciplines. Our results suggest, that facilitating students' participation in practice by means of longer clerkship rotations may lead to knowledge deficiencies in disciplines students did not rotate through. As a consequence, students' expertise development in these disciplines may be impaired [3].

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10E/5

A Comparison of Three Versions of System 2 Oriented Feedback in Diagnostic Training for Ill-Defined Disease Constructs

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Introduction: The 'Dual-processing' (System 1/System 2) information processing paradigm has been forwarded as a means of improving instruction directed at categorization tasks such as differential diagnosis. In this paradigm, System 1 represents a pattern recognition-oriented, non-analytic/sub-conscious information processing mechanism while System 2, a feature-driven, analytic/consciously mediated mechanism. Individuals tend to preferentially utilize one information processing mechanism over the other. In recent studies involving 'well-defined diseases' (i.e., disease having necessary and sufficient diagnostic criteria), medical novices trained to utilize both System 1 and System 2 mechanisms, or a specific form of System 2 processing termed 'compare and contrast' processing, outperformed novices trained to use either System 1 or System 2 alone. However, the vast majority of human diseases are 'ill-defined' (e.g., myocardial infarction, pulmonary embolus) in that they lack necessary and/or sufficient diagnostic criteria. In this study, we sought to determine which of three different forms of System 2 contrastive training best improves the diagnostic accuracy of medical novices dealing with more commonly encountered, and difficult to diagnose, ill-defined diseases.

Methods: Following review board approval, 117 students were randomized into one of three study groups trained to diagnose each of nine common/important (albeit, clinically ill-defined) causes of Acute Chest Pain (e.g., myocardial infarction, pulmonary embolus, pneumonia). All three groups received a pre-training and post-training test consisting of the same 36 acute chest pain case vignettes (four portrayals of each of the nine diseases). Group A received compare and contrast feedback identifying features both similar across, and discriminating, the target (correct) diagnosis from their erroneous diagnosis, and, the listing of those features was in accordance with a traditional ordering of historical and physical (H&P) features, N=39; Group B received feedback listing only features that discriminate the target (correct) diagnosis from their erroneous diagnosis, and, the listing of those discriminating features was in accordance to a traditional ordering of H & P features, N=41; Group C received feedback listing only features that discriminate the target (correct) diagnosis and their erroneous diagnosis, and, the listing of those discriminating features was in accordance to their relative capacity to discriminate the target (correct) diagnosis from the erroneous diagnosis rather than in accordance to a traditional ordering of H & P features, N=37.

Result: The three groups did not differ in their pre-training test scores. A highly significant Cohen's D effect size improvements observed in each of the three groups (Group A = 1.29; Group B = 1.23; Group C = 1.61). ANOVA revealed that none of the three System 2 feedback formats was superior to the others (df 2; F = .098; Sig .907).

Discussion and Conclusion: In this investigation, we demonstrated that all three System 2 feedback methods produced highly significant effect size improvements in DDX performance. However, System 2 feedback consisting of a full comparing and contrasting feedback strategy identifying both similar and discriminating features provides no additional benefits compared to a much simpler form of System 2 feedback consisting of a listing of only discriminating features ordered in terms of their relative importance.

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10F Short Communications: Assessment
Location: Chamber Hall, PCC

10F/1
Assessment practices are on the move

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Background: In medical education there is an increased interest in flexible and personalised assessment. From the ethics of equity it is becoming increasingly clear that standardisation is not the sole route to fairness and equity, especially in educational situations with a diversity in the profiles of students in the medical program. Here, standardised testing may rather lead to inequity than to equity.
Summary of work: In the context of a rural placement programme which is built according to the longitudinal and integrated clerkship model, we have employed a flexible and personalised assessment system. This programme is politically sensitive and therefore our approach to equity is under close scrutiny. In our situation a deficiency-model would have implied lowering standards to cater to the diversity whereas a difference-model has led to identifying and managing strengths and weaknesses of each student.
Summary of results: These differences in strengths and weaknesses are not so much apparent in terms of differences of learning styles or other stable characteristics, but are mainly located in intra-individual differences and interactions between student, teacher and subject matter to master. This is why standardised assessment would probably have created more inequity.
Conclusions: Optimising the student tailored teaching and assessment is important and seems intuitively right but there are practicalities, and pros and cons, which we will discuss based on our experiences.
Take-home messages: Flexible assessment is often more equitable than standardised assessment in situations where the student body is of diverse backgrounds.

10F/2
An International Consortium for Assessment Networks (ICAN): facing the challenges of competency-based assessment

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Background: Good examinations require considerable resources. Beside medical faculties several institutions which perform assessment in postgraduate education or in other health care professions are confronted with this challenge. There is a need for 1) the possibility to exchange, standardize and compare the appraisal of achievement, 2) an efficient quality assurance, and 3) the chance to move forward to competency-based forms of assessment.
Summary of work: Therefore in 2006 the Medical Assessment Alliance was founded to facilitate all relevant processes of assessments in medical faculties. After several international partners had joined the International Consortium for Assessment Networks (ICAN) was established as a non-profit umbrella organization for assessment alliances with different interests and focuses.
Summary of results: At present, ICAN covers 31 medical faculties in 6 countries all over Europe. More than 3.500 users in 1.100 working groups are collaborating. To support cooperation within this network, the web-based ItemManagementSystem (IMS) was developed as an all-in-one working platform. Currently 122.000 questions have been stored in the IMS. Since 2007, more than 6.100 examinations have been successfully conducted. Aside from the medical faculties additional institutions or foundations like the European Board of Medical Assessors (EBMA), several physician chambers, etc. have decided to use IMS for the assessment at different steps of postgraduate education (assessment of clinical competence, board certification etc.), some for assessment of examinees in other health care professions.
Conclusions: There are overall 48 partners which are united under the non-profit organization ICAN.
Take-home messages: ICAN-partners can take advantage of all features of the IMS-platform which could be customized for their specific needs.

10F/3
Variation in achievement patterns of medical students in final examinations in MBBS course and its reasons

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Background: Performance of medical students is not static through the MBBS course. Identifying the reasons for success and failure in their examinations will help to identify the cause of variations in achievement patterns of medical students in MBBS course.

Summary of work: Four year data of final assessments of first to fourth year MBBS students was collected. Thirty students (10 each from high, middle and low achievement scores) in the first year MBBS were selected from the data to see the variations in their ranks and grades in the next 3 years. These students were interviewed to find the reasons they attributed to their success and failure. Weiner's attribution theory was used to explain the reasons for their success and failure.

Summary of results: Only few students were able to maintain their ranks and grades with consistent pattern in all four years. A very high variation in ranks/grades was found. Effort and Interest was the main reasons for the success whereas bad luck and task difficulty were mainly attributed to failure.

Conclusions: Wiener's attribution theory explains the reasons for success and failure of students and this helps to find the reasons for variations in student achievement and failure patterns.

Take-home messages: Identifying the right reasons at the right time for failure and success in examinations can help students to improve their grades.

10F/4

How well do medical school assessments predict post-graduation performance?

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Background: Although studies have shown the individual values of undergraduate assessments in predicting graduate performance, little is known about their relative contributions when compared simultaneously.

Summary of work: Two-hundred-fifty-six (66%) graduates in the 2009 and 2011 residency program director surveys were rated by their supervisors. A multiple regression analysis used the ratings to examine the predictive values of several undergraduate assessments, including the United States Medical Licensing Examination (USMLE) Step 1, Step 2 Clinical Knowledge (CK), National Board of Medical Examiner (NBME) medicine exam, inpatient clerkship ratings, and an 8-station Clinical Performance Examination (CPX). A multivariate analysis of covariance (MANCOVA) was conducted to examine the differences among the three internship performance groups (Low, Medium, and High) in these measures, using Medical College Admission Test (MCAT) scores as a covariate.

Summary of results: Only the inpatient clerkship ratings and CPX scores contributed significantly (p < .01) to the prediction of internship performance. After controlling for differences in MCAT scores, we found significant group variations in the undergraduate measures (F (10, 488) = 2.91, p = .001). Follow-up analyses revealed significant (p < .01) differences in the inpatient clerkship and CPX assessments.

Conclusions: Performances in clinical settings were stronger predictors of internship performance than knowledge test scores. The undergraduate assessments demonstrated a collective relationship with the internship measurement, even when students' pre-medical school differences were held constant. Medical school assessments, especially those measuring clinical competencies, positively predicted post-graduation performance.

Take-home messages: Clinical assessments by undergraduate and graduate faculty members are comparable.

10F/5

Can preclinical standardized tests predict medical student clinical performance? A multi-specialty longitudinal analysis

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Background: Standardized examinations are designed to objectively measure performance. Where literature supports the correlation between premedical (MCAT), preclinical (USMLE1) and clinical standardized scores (NBME subject&USMLE2) in individual specialties, our study presents correlations across all clinical clerkships using NBME subject examinations, and incorporates a clinical performance parameter (ISES) to determine if clinical performance can be predicted.

Summary of work: Gender, GPA, MCAT, USMLE1, USMLE2, NBME subject and ISES scores were obtained for 310 students matriculating at MMS 2003-2009. The outcomes of interest were NBME subject and ISES scores. Multivariable linear regression models using stepwise and backward variable selection identified independent predictors. The strength of each model was summarized by R2 value.

Summary of results: The strongest predictor of USMLE1 was the MCAT-biologic al science score, with R2=23%. The strongest predictor of USMLE2 was USMLE1, which yielded R2=61%. All NBME subject scores correlated with USMLE 1&2, (R2: IM 59%, Pediatrics 64%, Surgery 54%, Obgyn 60%, Neurology 61%, Psychiatry 52%). Independent predictors of ISES scores were USMLE2 and GPA, however these measures only explained 16% of the ISES variation.

Conclusions: Among students at Mayo Medical school, premedical standardized scores (MCAT) correlated with preclinical scores (USMLE 1), whereas the latter correlated with later clinical standardized scores (USMLE2 and NBME subject). Clinical performance scores (ISES) correlated with both clinical standardized scores (USMLE2) and undergraduate performance (GPA).

Take-home messages: Standardized scores may serve as predictors of future examination and clinical clerkship performance in medical school. Identifying students at risk for underperforming in medical school based on standardized scores will facilitate earlier intervention and remediation.

10F/6
Clinical assessment in Australian and New Zealand medical schools: Providing an overview and the development of a national assessment resource

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Background: The increase in medical student numbers across Australia has put pressure on educational bodies to provide quality clinical training and to undertake assessment that measures the work readiness of graduates. Over the last three years, Medical Deans Australia and New Zealand has developed clinical training resources for medical schools. The first was a framework of clinical competencies based on national accreditation standards; the second identified the common diagnostic and procedural competencies for the medical graduate and specified the level of achievement of these skills. A third body of work is now underway which builds on the first two stages to develop a comprehensive overview of how Australian and New Zealand medical schools assess the clinical competencies of their graduates before they enter the workforce.

Summary of work: An extensive consultation process with all Australian and New Zealand medical schools was undertaken to collect data on clinical assessment, assessment blueprints, the use of Workplace Based Assessments in medical schools and standard setting for clinical assessments.

Summary of results: The project has provided a summary of clinical assessment in Australian and New Zealand medical schools whilst examining the role of Workplace Based Assessments in medical schools. Conclusions: This information has been collated to develop an assessment blueprint for clinical competencies for the medical graduate which medical schools could use to compare and evaluate their clinical assessment programs.

Take-home messages: Best practice scenarios for clinical assessment have been identified, providing useful information for medical schools, accreditation agencies and health services about clinical training and how graduates are assessed as ready for internship.

10F/7
What do postgraduate examiners know about, and think of, standard setting in the College of Physicians of South Africa?

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Background: Since its inception in 1954, the Colleges of Medicine of South Africa (CMSA) has used a fixed pass mark (cut-score) of 50% for all fellowship examinations in its 29 constituent colleges. In 2011 the College of Physicians (CoP) introduced standard setting (Cohen method) for components of their fellowship examinations. Despite an earlier workshop, it seemed that CoP examiners had limited knowledge of, and diverse opinions about, standard setting. A situational analysis was done to verify knowledge gaps and explore attitudes towards standard setting to guide the design of a focused workshop for CoP examiners.

Summary of work: An anonymous online survey was sent to current (2010-2013) CoP examiners (n=51). Their knowledge of, and opinions about, standard setting were investigated.

Summary of results: Seventy five percent of examiners completed the survey. Some examiners did not know that standard setting had been introduced; 21% for Part I MCQ exam and 45% for Part II Objective Test. Altogether 21% were knowledgeable about, and 55% were familiar with, but not knowledgeable about, standard setting. A number of examiners (29%) had "no problem" with using a fixed 50% pass mark, 32% were concerned about it and 39% rejected the practice. Most (63%) endorsed the changes made and 74% supported further implementation of standard setting in other CoP examinations.

Conclusions: Although many CoP examiners endorsed standard setting, and some rejected the ongoing use of a fixed pass mark, they had very limited knowledge about standard setting.

Take-home messages: Although broadly positive and supportive, CoP examiners need more information about, and a better understanding of, standard setting.

10G Short Communications: Curriculum: Competency Based Education/Outcome Based Education 2 – Undergraduate

Location: Conference Hall, PCC

10G/1
The planner's plan - Reflections on the underlying conceptions and the theoretical basis of a new integrated, competency-based medical curriculum at the Charité Berlin

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Background: Establishing a reformed medical curriculum is a challenging encounter for all medical faculties. Yet there is a lack of profound research on the reform processes and success factors even though it could guide and facilitate the introduction of curriculum reform in other places.
Summary of work: The Charité – Universitätmedizin Berlin introduced a new medical curriculum, Modular Curriculum of Medicine (MCM), in 2010. The MCM attempted to incorporate a large number of elements currently accounted as characteristics for good teaching and learning, for instance being out-come and problem-based, involving early patient contact, interdisciplinary modules and small group and team-based learning. This research work focuses on the educational theory basis of the MCM using a mixed-status focus group analysis with former key-players, including students in the MCM-planning and decision-making process.
Summary of results: The data obtained were analysed via content analysis (Mayring 2007) of qualitative data and provided systematic insights into the multi-layered negotiation process of planning a medical curriculum. It formulated the implicit and explicit objectives and ideas of the planners in retrospect and allowed a connection to their educational theory background.
Conclusions: The focus group analysis reveals the highly creative and dynamic process of building the basis of a new curriculum at the very beginning where there aren't constraining organizational factors. It points out the vision of the new curriculum as well as educational understanding of the planners.
Take-home messages: Analysing and communicating curriculum planner's plans may serve as tool to guide and foster reform of medical curricula.

10G/2
Implementation of a competency-based DVM program without changing the existing program structure at the Université de Montréal

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Background: A competency-based approach was implemented within the existing DVM program structure thus avoiding a costly and complex curriculum overhaul.
Summary of work: Course contents were reviewed, aligned and integrated using concept mapping. A competency framework was developed in three steps: definition of essential learning elements (SKA's) for each of the seven competencies, determination of expectations for each competency at each level of the program, and creation of developmental rubrics for assessing competencies. Reflective practice was identified as the educational concept's backbone.
Summary of results: Concept maps of course contents were shared amongst teachers to align learning objectives with essential learning elements identified for each competency and to integrate course contents throughout the program. A competency development and evaluation trajectory (CDET) was designed to include complex and authentic tasks called "learning-evaluation situations" (LES) within existing courses of the program. These LES were created by faculty to allow students to practice each competency and receive formative feedback several times throughout the program before submitting to certifying evaluations corresponding to each level of the program (novice, advanced and day-one). An electronic portfolio was designed to allow students to reflect on their progress within the CDET.
Conclusions: Alignment of course contents and learning objectives with a competency framework along with a carefully designed CDET are essential to the successful inclusion of a competency-based approach in an existing program structure.
Take-home messages: Several key elements are essential to designing and implementing a competency-based approach without changing the existing structure of a professional program.

10G/3
On the way towards a National Competency-based Catalogue of Learning Goals for Medicine (NKLM) in Germany: The role of the "Gesellschaft für Medizinische Ausbildung" (GMA)

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Background: Outcomes of undergraduate medical education in Germany are measured after six years by a national written single best answer multiple choice exam and a two day clinical case-write-up and oral examination in the faculties´ responsibility. However, no outcome- or competency-based national catalogue of learning goals exists. The GMA together with the German Association of Medical Faculties have initiated a structured process of creating such a catalogue together with all relevant institutional stakeholders in medical education, taking into account international references as well as catalogues from faculties and national medical associations.

Summary of work: We describe the development of the NKLM from 2009 until now with respect to its structure, process and preliminary results from the perspective of the GMA, the association for medical education in the German speaking community. 21 interdisciplinary workgroups are involved in the development process.

Summary of results: Intermediate results are currently reviewed by more than 150 German medical associations. The goal is a broadly accepted competency-based core curriculum to be used by the 37 German medical faculties as a joint basis that should be enriched by faculty specific profiles. The NKLM should provide recommendations for assessment and serve as a foundation for postgraduate training. Competencies should seamlessly be further developed after graduation. The development process is critically reviewed and perceived strengths and shortcomings are described.

Conclusions: The multi-institutional development of the National Competency-based Catalogue of Learning Goals for Medicine (NKLM) is a complex process.

Take-home messages: The NKLM has potential for the improvement of medical education in Germany. Evaluation studies to support this assumption are needed.

10G/4
Self-assessment as a driving force in competencies development

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Background: The medical curriculum at Université Laval is a competency-based program combining knowledge acquirement with development of the seven CanMEDS competencies. Progressive development of these competencies is monitored by an innovative longitudinal approach established to assure that all students achieve the required levels. This pedagogical approach allows students to perform self-assessment and offers them active learning opportunities, while being guided by a mentor.

Summary of work: Elaboration of longitudinal courses throughout the entire curriculum allows for assessment of the students development of these competencies and for outlining an overall portrayal. Every student actively participates in his own learning process through self-assessment of the continuing development of his competencies during his academic progress.

Summary of results: A dashboard is elaborated using various evaluation methods from several integration courses. This tool is regularly updated and reveals the student's progress towards acquiring the expected levels of competencies.

Conclusions: Each student can follow his own development of competencies as a future physician. Students have to learn to search for adequate resources suiting their appraisal and to suggest remedial incentives.

Take-home messages: Sharing this innovative educational evaluation approach developed by Université Laval. Presenting the assessment and self-assessment processes. Discussing the central role of self-assessment in medical degree course.

10G/5
European consensus on core learning outcomes for the Bachelor of Medicine: findings of the MEDINE2 Bologna first cycle study

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Background: The Bologna Process requires European universities to adopt a three-cycle system of Bachelor, Master and Doctor degrees (www.ehea.com). Tuning methodology (www.unideusto.org/tuning) was previously used to gain consensus on core learning outcomes for primary medical degrees (Master of Medicine) across Europe (www.tuning-medicine.com). The results have been widely accepted and influential. The current study, undertaken by the EU-Funded MEDINE2 Thematic Network (www.medine2.com), sought consensus on core learning outcomes for the Bachelor of Medicine.

Summary of work: An online survey was developed from the core learning outcomes for primary medical degrees. Respondents indicated, on a Likert scale, to what extent they thought students should have learned each outcome by the time they had successfully completed three years of university education in medicine.

Summary of results: There were 560 responses, representing virtually all EU countries, medical students, academics, graduates, employers and patients. Most

indicated, with moderately high consensus, that all learning outcomes previously defined for primary medical degrees should be achieved to some extent by the end of the first three years. Free text comments highlighted the need for early clinical experiences and patient contact.

Conclusions: Broad consensus across Europe was achieved on core learning outcomes for a Bachelor of Medicine degree. Opinions differ over details, but there is now a common framework and terminology for discussing and defining what a Bachelor of Medicine graduate can and, importantly, cannot do.

Take-home messages: Defining core learning outcomes for the Bachelor of Medicine is both possible and desirable, and can promote early patient contact and integration in European undergraduate medical curricula.

10G/6
Common Transferable Skills in Medical, Dental and Healthcare Education

David Wayne (A. T. Still University, Academic Affairs, 5850 E. Still Circle, Mesa, Arizona 85206, United States)

Background: As Chair of the University's Assessment Committee, it is often difficult to look at assessment that goes beyond individual schools (Medicine, Dentistry, Audiology, PT, OT, PA, Public Health, etc.). This presentation examines 8 generic but vital transferable skills that does just that.

Summary of work: Each transferable skill (leadership, wellbeing, critical thinking, cultural competence, interprofessional collaboration, ethical & legal understanding, positive interpersonal communication and self-assessment) is mapped in all courses (objectives, content and measurement).

Summary of results: Broader assessment and heightened and measured transferable skills leading to whole person healthcare.

Conclusions: Assessing content knowledge and even clinical skills are only part of successful assessment.

Take-home messages: Medical education needs to look at what students learn that will hold them in good stead in the face of exponentially increasing and changing clinical knowledge.

10G/7
Professional activities as key educational structure in competency-based undergraduate medical education

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Background: While the concept of entrusted professional activities can bridge the gap between a competency-based outcome framework and clinical practice in postgraduate training, the potential relevance and applicability of this concept for undergraduate training is largely undefined.

Summary of work: The Charité – Universitätsmedizin Berlin introduced a modular, integrated curriculum of medicine in 2010 including a longitudinal patient care track from the beginning on. Professional activities for students were employed as the leading measure of outcome for the 2nd year ("organ-related" modules ranging from "skin" to "nervous system"). They were defined on the basis of one single, prototypic disease per study week and consisted of complete and clinically meaningful complete tasks, i.e. the ability to show focused history-taking and clinical examination in the selected disease of the week and to describe the principles of diagnosis, treatment and patient care. The selected disease was presented in a patient-based lecture and an on-ward patient-related clinical skills training. Basic science courses, problem-based learning and communication training accompanied each module. Students were assessed in patient-based structured practical-oral examinations or OSCE at the end of term.

Summary of results: Professional activities as weekly outcomes and the supporting curricular structure were evaluated positively by students and teachers. More than 90% of the students passed end-of-term assessments.

Conclusions: Professional activities can serve as a curricular structure to integrate and align the acquisition of knowledge, understanding and skills in competency-based curricula, including their early stages.

Take-home messages: Professional activities allow the translation of competency-based curricula into clinically meaningful students´ outcomes.

10H Short Communications: Curriculum Maps
Location: Club H, PCC

10H/1
Electronic crowdsourcing as a method for curriculum mapping

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Background: Curriculum mapping is becoming the linchpin for medical education reform in the 21st century, with an increasing demand on capturing and mapping finer level of information on all aspects of student learning. While the goal of curriculum mapping is apparent, the methodology to achieve this goal is not. Curriculum information requires a robust database solution for processing and storage. However, substantial content expert efforts are currently required to collect the vast amount of required information on each learning event. As the number of taxonomies to be mapped and the number of learning events increases, mapping of curriculum information is becoming unfeasible for an expert only task. Recently, rise of social media have brought forward the idea of distributed information collection.
Summary of work: The purpose of our study is to explore the use of distributed real-time electronic collection, also known as crowdsourcing, as a method for collecting curriculum mapping information. Five taxonomies composed of over 400 unique attributes, organized across seven strands of competencies and under four-level hierarchies, are mapped to a six-week undergraduate course with 86 unique learning events.
Summary of results: A group of twelve students are recruited to participate in collecting the attribute for each event in a distribute manner. Multiple students are assigned to the same form to determine inter-rater consistency of coding. Student collected results will then be compared to data collected by a content expert to investigate consistency between expert-novice coding.
Take-home messages: A crowdsourcing solution for curriculum mapping allows large amount of information to be collected in a real time manner, engaging students on learning about their curriculum in a more comprehensive manner, and more importantly allows for flexibility for providing feedback to curriculum changes.

10H/2
Supporting students to colour outside of the lines: How a user consultation informs the design of an eLearning outcomes-based curriculum tool

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Background: The outcomes-based curriculum model where desired course outcomes in broad integrated terms define and align learning activities and assessments has gained acceptance globally. To support this approach a curriculum framework or map is needed. One strategy is an online tool useful for students, teachers and evaluators. Appropriate design requires consultation with target user groups; learners in particular.
Summary of work: For this student user consultation 11 audio-recorded focus groups covering over 50 graduate-entry Flinders University medical students, across three year levels and eight teaching sites were conducted asking their requirements of an online curriculum map. The focus groups were facilitated by a researcher and senior medical student. Transcripts coded using NVivo were analysed for themes constructing an understanding of students' needs.
Summary of results: Participants strongly supported the development of a course curriculum map to reduce administrative 'noise' and solidify links between learning activities, learning outcomes, and assessment. Discussion about the desired online curriculum tool revealed much about the students' experience of the curriculum and online delivery systems, particularly anxieties about assessment and equality between sites.
Conclusions: The findings reflect current debates in health professional curriculum design. We wish to produce health professionals who integrate knowledge, practice and professionalism and are effective self-learners and collaborators, hence the trend towards outcomes-based curricula to guide toward outcomes. But students ask for transparency, specificity and consistency, suggesting atomistic prescriptive approaches to defining the curriculum.
Take-home messages: We conclude that in designing outcomes-based curricula tools to assist student curriculum navigation and self-learning that course philosophy should be explicit to ensure tools support rather than contradict this.

10H/3
Mapping the undergraduate medical curriculum: integrating with a digital landscape

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Background: Professional bodies exert considerable influence on the design of the medical curriculum, mandating educational outcomes or competences to be attained. Learning technologies offer valuable opportunities for constructing an engaging learning environment. In this context, curriculum mapping has been adopted by a growing number of medical schools. It aims to make the curriculum transparent and accessible to stakeholders, while providing information in a consistent, navigable way. Web 2.0 technologies have revolutionised how such maps can be dynamically represented for a systems-based spiral medical programme.

Summary of work: The School of Medicine in NUI Galway has embarked on the development of a curriculum map to serve multiple functions and users. A tool was developed for mapping learning outcomes against those mandated by the Medical Council and for blueprinting learning outcomes with assessment. The design of a comprehensive curriculum database was shaped by stakeholders' needs. Students' views informed the design of a highly dynamic interface; they also contributed to the content-tagging process.

Summary of results: Piloting clarified stakeholder needs and ensured interoperability with other systems. The functionality of a map was demonstrated. The mapping tool facilitated a deliberative curriculum planning process. Students searched for content using tags. Reports supported programme management. Integration with the digital landscape was made possible.

Conclusions: Mapping is vital to curriculum planning, programme management and student engagement. It is an inherently localised process that requires a combination of academic, technical and administrative expertise. It requires long-term commitment based on demonstrated benefits.

Take-home messages: Involvement of stakeholders and users – especially students – in the development process is central to the success and sustainability of curriculum mapping in medical education.

10H/4
Embedding Competency and Curriculum Mapping in an Open Source Enterprise Educational System, TUSK

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Background: The Tufts University Sciences Knowledgebase, TUSK, is an enterprise educational system. Along with a content repository and LMS it provides a place to publish school-wide, course and session competencies. With the need to implement the new Medbiquitous Curriculum Inventory Standard and Competency Framework we added national competencies, developed a mechanism to link the competencies across the curriculum, and a visualization method.

Summary of work: We decided to link course level competencies to assessment methodologies, themes and keywords and create a course-based competency-nodes linked to session competencies and learning objects associated with teaching and learning methods. Curriculum Deans in the TUSK consortium of schools helped plan the new functionality. A specification and user interface was developed. An open source visualization tool built on Json supplemented an excel view of the competencies. These provide a variety of ways for curriculum planners, faculty and students to manipulate the data and use it to view pathways through the curriculum.

Summary of results: The visualization tool simplified a complex array of information and pathways through and across the levels. The system was designed so that central administrators would link from school to national competencies and down to course level competencies while course directors would link from course to sessions. Versioning was added to associate competencies with publications dates.

Conclusions: Following Harden's theory, TUSK has a place to publish, view and assess competencies within a learning management system.

Take-home messages: Working through a consortium of curriculum deans a tool was built that serves accreditation and local curricular management needs.

10H/5
Impact of e-curriculum mapping as the basis for "Automated Integration" on medical education quality

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Background: Much attention regarding automation for education has been limited to "Student Information Systems" SIS & "Learning Management Systems" LMS and to a lesser degree to e-assessment systems. Those systems are living in isolated islands requiring major work for integration that is often incomplete and unsatisfactory.
A new approach for automation in medical education based on e-curriculum maps would guarantee full automation of all of the above systems and would generates huge statistical data that can monitor and evaluate the educational process.

Summary of work: A virtual design of medical curriculum starts with designing the overall curriculum structure, zooming in into each of its courses down to the level of each educational activity, defining the learning objectives at all those levels producing a visual e-Curriculum Map. This establishes a foundation upon which curriculum content is published via LMS, tracking

the interaction of teachers building the content, and students viewing it, Assessment items can now be built by the faculty and electronically correlated to both the curriculum maps and content delivered. Measuring performance is checked by both assessment and evaluation tools.

Summary of results: Preliminary studies using e-curriculum maps as the basis for full integration of all automation element (eMaps +SIS + LMS +Assessment + evaluation tools) have demonstrated that such approach to curriculum planning and monitoring can be adopted in medical colleges and has significant benefits.

Take-home message: Curriculum e-designs generating curriculum e-maps & blue prints is a reality nowadays and would act as a solid foundation for full integration of SIS, LMS, Assessment and evaluation system.

Such e- integration has the capability to monitor and guide medical education. Aggregates of such data provides the evidence that helps medical educators to collaborate within individual colleges or at the level of consortiums of colleges. We believe that a new innovative tool has been generated that permits potential international collaboration in medical education.

Acknowledgement: College of medicine in Imam Mohammad Bin Saud, Riyadh, Saudi Arabia for taking the lead in implementing such innovative tool of curriculum mapping & integration.

10I Short Communications: Training to be a Surgeon
Location: Club A, PCC

10I/1
Fast-track training enhances surgical skills

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Background: Focus on patient safety increases demand for risk-free surgical training.
Summary of work: A fast-track training model was tested in a randomized study. 18 surgical trainees were included and randomized to intervention (10) and control (8). The intervention group was offered a skills-lab course followed by the prospect of 20 supervised hernia repairs in their departments within 4-8 weeks. The control group followed the usual training program. All participants were video recorded at intervention start, at intervention end, and at follow up by the end of the first year of training. The control group was recorded at start and at end of the first training year. All recordings were rated by two blinded raters using a validated skills rating scale (8-40 points).
Summary of results: In the intervention group the average rating of operative skills before intervention was 22.5 and after 26.2. Participants performed in average 16.8 hernia repairs during intervention. This change is statistically significant p=0.044 (paired t-test). At follow up after one year rating was 27.1, p=0.0197 (paired t-test). In the control group average rating was 23.4 at start and 21.8 at end, p=0.51 (paired t-test). At start no difference was detected between the two groups, by one year the difference was statistically significant favouring intervention p=0.0445 (t-test).
Conclusions: A fast-track structured training program was preferable in both short and long-term compared with standard training.
Take-home messages: Fast-track training improves surgical performance in trainees.

10I/2
Assessment of surgical skills competence using fMRI: A feasibility study

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Background: Patient safety is fundamental to modern medical practice. Assuring surgical competence is becoming more important at a time when Surgeons are being trained in fewer hours. However, accurate objective assessment of technical skills ability is fraught and poorly defined. Medical schools differ in their conceptions of minimum levels of competence. Functional Magnetic Resonance Imaging (fMRI) has a long history in neuroscience and cognitive studies; however, little is published on actual rather than perceived motor skill ability. This study sought to assess the feasibility of utilizing an objective assessment method, by measuring blood oxygen level dependent signal changes (BOLD) in specific brain regions via fMRI.
Summary of work: fMRI images were acquired in 9 subjects (3 Experts, 3 Intermediates, 3 Novices) while performing and imagining performing a basic surgical procedure: hand tying of surgical knots. The effect of subject head motion caused by the task itself was assessed the efficacy of fMRI data analyses in removing artefacts caused by this noise source in the data was explored.
Summary of results: Voxel-shifts of less than 1 voxel (3x3x3.55mm3) were recorded in all participants and were successfully corrected in all cases in the fMRI pre-processing step. Increased BOLD activity was observed in Experts compared to Novices when "imagining a task" in the primary visual cortex, an area important in perceptual learning. Specific Regions of Interest identified include Left Supramarginal, Left Rolandic Operculum and Left Post Central regions.
Conclusions: fMRI is a feasible method of assessing actual motor skill. Larger numbers are needed to investigate findings further.
Take-home messages: fMRI is a feasible method of assessing actual motor skill.

10I/3
Practising masters: how can surgeons learn from elite athletes?

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Background: Sport and surgery can be shown to share much common ground in terms of the skills required to excel: skills of technical ability, sensory processing, and cognitive reasoning. My background as an Olympic athlete has led me to experience the demonstration of these skills at the very highest level in sport, and naturally to question whether they can be transferred to

learning as a surgical trainee. Review of relevant literature confirms the commonalities between the two fields, and suggests training techniques which can be applied effectively to the learning of surgical trainees who aspire to become masters of their field.

Summary of work: A comprehensive PubMed literature search and review articles relevant to skill learning in sport and surgery and study of elite performers in each field was undertaken.

Summary of results: Analysis of the literature reveals there are clear neurophysiological, motor, and behavioural attributes shared by elite sportsmen and master surgeons. There is evidence that novel sport training techniques which harness these traits can be used to effectively teach surgical skills.

Conclusions: Masters of sport and surgery demonstrate clearly identifiable shared traits in each domain required for performance of their particular skill. Sports science has developed new coaching techniques to accelerate learning of these skills, and these have been demonstrated to have crossover applicability to surgical skills.

Take-home messages: Learning and mastery of surgical skills can be taught effectively using sports science principles.

10I/4
Enhancing surgical skills training through metacognition

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Background: Surgical training opportunities in the UK have been reduced by the European Working Time Directive, Modernising Medical Careers, and increasing concerns regarding patient safety. Simulation has gained popularity as a method to teach in a safe and structured environment. This study was conducted to examine whether good learners used metacognitive learning strategies, and whether encouraging the metacognitive learning strategies were applicable to surgical skills training.

Summary of work: Ten semi-structured interviews were conducted with Professors of Surgery, Surgical Educators and members of the Council of the Royal College of Surgeons of England. Interviews included questions on good learning traits, tried and trusted teaching techniques, and the suitability of the metacognitive learning strategies when encouraged in surgical trainees, and, in particular, slow learners. The interviews were analysed by two independent assessors using NVivo.

Summary of results: All participants agreed that good surgical learners applied metacognitive learning

strategies. In the context of experiential learning and a close relationship between trainer and trainee, expert demonstration, mental imagery, planning and goal-setting and reflection were highlighted as key elements of successful learning in the field of surgery. Setting of learning goals and rigorous reflection over longer term attachments were traits trainers attempted to foster in trainees. Participants also felt that encouraging these metacognitive learning strategies would enhance learning for trainees, and especially slower learners.

Conclusions: From these interviews there seem to be a correlation between positive learning traits in high quality surgical trainees and metacognitive learning strategies. With reduced exposure in the OT, trainees will benefit from metacognitive teaching and learning strategies.

Take-home messages: 1. Metacognitive learning strategies seem to correlate closely with the learning strategies employed by top-level surgical trainees. 2. The use of these learning strategies may help surgical skill training in the OR and in the simulation lab. 3. Further work in this field is warranted.

10I/5
"As one gradually gains experience, one loses one's youth": The relationship between academic performance and level at entry to an online Surgical Sciences programme

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O James Garden (University of Edinburgh, Clinical Surgery, Edinburgh, United Kingdom)

Background: In 2007, a three-year online part-time Master of Surgical Sciences (MSc)/Edinburgh Surgical Sciences Qualification (ESSQ) degree programme was launched, utilising an innovative platform which included virtual case scenarios based on surgical conditions within the Membership Examination of the Royal Colleges of Surgeons (MRCS) curriculum. The influence of surgical trainees' level of work experience at entry to the ESSQ programme on academic performance was examined.

Summary of work: Academic assessment data and information on training post held were sourced from student records relating to academic years 2007/08 to 2011/12 of the ESSQ programme at the University of Edinburgh/Royal College of Surgeons of Edinburgh.

Summary of results: 424 surgical trainees from 38 countries were admitted to the ESSQ programme over the five-year period (2007-11). 212 of the 279 (76%) students whose level of work experience was known,

entered as foundation doctors (interns) within two years of graduation from medical school. The remaining 67 were in a surgical training (ST) programme (ST1 = 54; ST2 = 11; and ST3 = 2). There was no significant influence of level of training on entering the ESSQ programme and end-of-year results (Year 1: P=0.26, n=279; Year 2: P=0.12, n=188; and Year 3: P=0.48, n=117; one-way ANOVA).

Conclusions: Each student within a particular level of training can have a very different profile of skills and experience compared to others at the same level, accounting for the lack of a relationship between performance and level at entry to the ESSQ programme.

Take-home messages: Greater experience held by more advanced trainees may be offset by a longer period away from formal academic study, conferring an advantage to recent graduates who are more accustomed to intensive study

10I/6
Observing the 'surgeon trainee teaching dynamic' in cataract phacoemulsification

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Background: Trainee surgeons were until recently at the mercy of willing but often idiosyncratic teaching in the operating department. This paper reports a small UK observation study exploring surgical teaching in ophthalmology and the experiences of ten trainees prior to introduction of the postgraduate curricula.

Summary of work: The teaching dynamic between attending consultant surgeon and trainee provides the focus. Typically the attending surgeon provided brief spoken feedback on conclusion of the case and this never exceeded a few sentences relating required improvements in technique, habits, instrument usage and the trainees' hands and posture. The observer was able to create a heuristic matrix of key feedback and use this to debrief the trainee immediately after the case (Fessey 2002: Patterson et al 2003).

Summary of results: Teaching interventions were categorised by typing surgeon teachers and trainees' responses in a post event debrief. Three types of surgeon teacher were identified and their qualities distinguished; the natural teacher who set up a calm climate talking quietly to the trainee throughout a selected phase of the case; the charismatic quick tempered teacher who was at once inspiring and unpredictable and who resorted to hubris, humiliation or blame; and finally the cautious and reluctant teacher who trusted only senior trainees.

Conclusions: Trainees' responses to teacher types are discussed and the impact of the struggle to operate and progress.

Take-home messages: Ensuring surgeon teachers are trained, observed and given practice feedback.

10I/7
The joint project 'Practical clinical competence'

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Background: Undergraduate training competes with patient care and experimental research, mostly to the disadvantage of the training of clinical skills and competencies. Surgery with its various skills important even for beginners is predestined to analyse and implement training concepts for practical clinical competence. The present work aims to improve undergraduate training of practical skills in surgery in a nationwide network.

Summary of work: The joint research project was conceptualized by the medical faculties of Frankfurt, Gießen and Marburg (Germany) in collaboration with the German Society of Surgery (DGCH), the German Society of Medical Education. The project is funded by the German Federal Ministry of Education and Research with almost two million Euro for a period of 5 years (Begin: April 2012). It consists of a curriculum development part with analysis, development and integration of teaching and assessment methods, a content part, analysing and developing online teaching contents, which are made available for both teachers and students as mobile learning tool. Third, qualification programmes for physicians are implemented in order to improve both undergraduate education and attractiveness of educational research.

Summary of results: A curriculum map aroused for all three surgical curricula allowing a detailed analysis regarding existing learning objectives and teaching methods. An ontology for the nationwide learning objectives was developed, linked to online teaching contents (e.g. videos). A checklist evaluating these contents was developed.

Conclusions: The present work presents a joint curriculum and faculty development project of three medical faculties with nationwide partners exemplary for the surgical training.

10J Short Communications: Patient Safety 2
Location: Club E, PCC

10J/1
Improving leadership, teamwork and communication skills using an integrated, simulation-based patient safety curriculum

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Background: Communication breakdown and leadership failure are among the most common root causes of adverse events. The solution, in part, requires building a patient safety curriculum that fosters faculty development; teaches teamwork and communication skills to residents; and cultivates leadership.
Summary of work: The curriculum, based on crew resource management principles, was delivered via workshops and video conferences. Simulation-based experiential training allowing learners to apply new knowledge was a prominent component of the intervention. Quantitative data included pre and post-intervention surveys and observational data from simulations measuring leadership, teamwork and communication confidence and skills.
Summary of results: Survey data revealed that following training, residents were more confident (pre vs. post course, Likert scale 1 to 5, n = 156 surveys, p < 0.001) in establishing a common, shared understanding of a patient's condition (3.8 vs. 4.7); using specific communication strategies, e.g. readback (3.7 vs. 4.5); and utilizing a team-approach to deal with situations (3.8 vs. 4.5). Observational data demonstrated improvement (first vs. last simulation, scale 0 to 10, n = 124 observations, p < 0.001) in teamwork (6.1 vs. 7.1), communication (6.0 vs. 7.0), and leadership (6.1 vs. 7.6).
Conclusions: A standardized, simulation-based patient safety curriculum for residents was associated with demonstrable improvements in confidence and skills in teamwork, communication, and leadership among participants.
Take-home messages: Healthcare organizations can close the gap in the patient safety leadership, teamwork and communication skills necessary to reduce preventable adverse events by implementing a simulation-based patient safety curriculum into residency training.

10J/2
Quality Improvement projects are an effective method of educating junior doctors in patient safety

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Background: The science of healthcare improvement is new and emerging into medical curricula. There is no consensus on how to deliver the knowledge, skills and most importantly attitudes which allow junior doctors to become active in patient safety. However, it has been recognised that they are a fantastic resource for quality improvement work and the recent Francis Report in the UK highlighted the importance of empowering this group of health professionals to speak up and act.
Summary of work: We have developed a programme which delivers the Institute for Healthcare Improvement 'model for change' theory over the Foundation 1 year as the trainees apply it to a project on their ward. We provide faculty and experts to drive their projects forward, learning the skills in teams as they put plans into action. We have surveyed their attitudes to quality improvement and patient safety before and after.
Summary of results: Our questionnaire demonstrates an increase in trainees' knowledge which accompanies a shift in attitudes towards believing that they understand the importance of patient safety and know how to drive forward a change. Following our programme, 95% of trainees feel empowered to act to improve patient safety.
Conclusions: Educating junior doctors about quality improvement and delivering our programme which combines theory, practical advice and skills to develop their projects has led to a positive shift in attitudes towards patient safety and the model for change.
Take-home messages: Delivering an adaptable, practical and example-based approach to teaching quality improvement methodology improves junior doctors' knowledge, skills and attitudes towards patient safety.

10J/3
Distraction impairs left-right discrimination ability in medical students - is it time for non-technical skills training as part of a wider patient safety curriculum?

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Background: Clinicians are aware of the impact of distraction on performance. Human factors and non-technical skills training have been instrumental in improving aviation safety and given that doctors work in a complex, unpredictable and equally high stakes environment, we should learn from innovations of aviation. Basic left-right errors leading to wrong site surgery can have devastating consequences for patients. In medical students, using a neuropsychological paradigm we elucidate the impact of different methods of distraction on left-right discrimination ability, an important non-technical skill or 'human factor'.

Summary of work: Psychometric study measuring left-right discrimination ability in medical students using validated Bergen left-right discrimination test under auditory (continuous ambient ward noise), cognitive (interruption with clinical cognitive task) and combined auditory and cognitive distraction against controls.

Summary of results: 234 students were recruited. Isolated cognitive distraction had the greatest negative impact on performance in the left-right psychometric test ($p<0.001$, partial $ε2=0.17$). Isolated auditory distraction had a significant negative effect ($p=0.008$, partial $ε2 =0.05$). Combined auditory and cognitive distraction did not have any significant effect beyond that of cognitive distraction alone.

Conclusions: Distraction has a significant impact on performance in this key cognitive function. Historically medical curricula have focused on technical skills acquisition. High stakes industries such as aviation have elucidated the need to acquire non-technical skills to maintain safety and this study highlights the need for a human factors and wider patient safety curriculum and assessment strategy as part of undergraduate and postgraduate training if catastrophes such as wrong site surgery are to be avoided.

Take-home messages: Distraction impairs left-right discrimination.

10J/4
Teaching medical students about human factors in patient safety using the WHO surgical safety checklist

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Background: The WHO Surgical Safety Checklist (SSC) has reduced errors in the operating room. Our objective was to design a tutorial, using the SSC, to illustrate a human factors approach to patient safety and evaluate its impact on knowledge/skills/attitudes.

Summary of work: The SuTURES (SUrgical Tutorial Using Realistic Events in patient Safety) tutorial contains four stations on aspects of patient safety and a group simulation exercise using the SSC. Objective assessment followed by immediate feedback drives further learning. Forty 3rd year medical students participated. Attitudes were evaluated using the APSQ3 and knowledge/skills acquisition through self-reported confidence (Likert) in key areas. Students paired t-test and ANOVA were used for statistical analysis (SPSS Version 18).

Summary of results: Attitudes, knowledge and skills as assessed by mean pre and post tutorial scores (±SD) improved: [Attitudes:123(±10) vs 137(±10.3),$p<0.001$], [Knowledge:38(±9.3) vs 58(±6.6),$p<0.001$], [Skills:30(±7.1) vs 47(±4.7),$p<0.001$]. Most significant areas included error reporting (12.1 vs 16.7, $p<0.001$), team working (11.6 vs 12.1, $p=0.009$) and importance of patient safety (16.4 vs 18.2, $p<0.001$). Students scored significantly poorly on the error reporting station (mean score 20/40, $p<0.001$).

Conclusions: The SuTURES tutorial design appears effective at introducing key concepts in patient safety to undergraduate medical students. Furthermore, it provides assessments on core aspects of clinical practice that reflect the responsibilities of junior doctors.

Take-home messages: Simulation using the SSC enables medical students to discuss near misses and adverse events in a non-judgemental, productive manner and equips them with the skills necessary to deliver patient centred care that is safe.

10J/5
'Stuck in the Moment'; reflections on acute care simulation through Significant Event Analysis

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Background: Significant event analysis (SEA) is a widely used patient safety tool to identify and learn from errors within a healthcare system. SEA can also be used as an individual educational tool to promote reflection on and learning from such events. The aim of this qualitative study is to explore the content of SEA forms submitted following a simulation event.

Summary of work: Final year medical students participated in an acute care simulation session. Each scenario was followed by an in-depth debrief and subsequently students were asked to submit a structured SEA form by email relating to an 'event' that had taken place during the day. A grounded theory approach was taken to thematic analysis of the content of the SEA forms.

Summary of results: 102 SEA forms were submitted (48% of students). The two overarching themes to emerge from the forms were that of 'managing uncertainty' and 'taking effective action'. Subthemes

were arranged into a framework that helps to describe students' perceptions of their performance and difficulties in acute care situations.

Conclusions: Students described difficulties in calling for help, making sense of the diagnosis, applying the rules and transferring knowledge into practice as well as non-technical skills such as situational awareness.

Take-home messages: The content of the SEAs reveal recurring areas of acute care that students find difficult. More experience of acute care simulation is needed at an undergraduate level to help students address these difficulties.

10J/6

Assessing the impact of a patient safety course on medical students' attitudes

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Background: At AMEE 2011, we described a course that introduces incoming third-year medical students to the subject of patient safety, focuses their attention on teamwork and communication, and creates awareness of patient safe practices which will positively impact their performance as clinicians (Shekhter et al 2012). To measure the impact of the course, we assessed the students' attitudes towards patient safety using a validated survey.

Summary of work: The course, held prior to the start of clinical rotations, consists of lectures, web-based didactic materials, small-group activities, and simulation exercises with an emphasis on experiential learning. To assess a shift in students' views, we modified a patient safety attitude survey (Carruthers et al 2009). Students completed this survey before and after the week-long patient safety course, and their responses were compared using the Wilcoxson signed ranks test.

Summary of results: 118 students completed the 26-question survey at both assessment points. Overall, students' attitude shifts in the favorable direction were statistically significant on 17 of the 26 questions. In particular, students became more appreciative of the need to study patient safety as a discipline and of the notion that disciplinary actions and being more careful are not the most effective strategies for preventing medical errors. Students' views on error and near miss reporting were more resistant to our educational intervention.

Conclusions: The course led to favorable changes in students' attitudes towards patient safety; however, it appears that attitudes toward error and near miss reporting require different educational strategies to change.

Take-home messages: Evaluating course impact on attitudes, in addition to knowledge and skills, improves insight, pointing to specific areas that need improvement in the course design.

10K Short Communications: Simulation
Location: Club B, PCC

10K/1
Use of a simulation-based education programme to improve individual and team performance in delivering high quality, safe care in the Post Anaesthetic Care Unit

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Background: Political drivers, professional standards and patient-centred care emphasise the importance of quality and safety within health care [Dept of Health, 2008]. The Post Anaesthetic Care Unit (PACU), as part of Theatres, responds to variable workloads, patient complexity, and unexpected complications (sometimes life-threatening) whilst striving to ensure efficiency and throughput. An in situ simulation-based training programme was designed that aimed to enhance standards of care amongst the PACU team, whilst supporting improvements in patient outcomes and experience in the immediate postoperative period.
Summary of work: The PACU simulation programme was based upon identified individual and team training needs, previous critical incidents, and national standards of care. Over the past 12 months we have provided a programme of regular training sessions. Relevant scenarios focused on postoperative problems such as respiratory and cardiac arrest, laryngospasm, anaphylaxis, acute coronary syndrome, hypovolaemic shock, and significant arrhythmias are taught. Session evaluation, use of evidence based scenarios, faculty development, 360 degree peer reviews, and audits of practice provided quality assurance for programme outcomes.
Summary of results: The programme has highlighted examples of excellent PACU practice. It also flagged individual, team based care and departmental processes where improvements could be made. Examples included the availability of equipment and staff, accessibility to key protocols, factors influencing the use of emergency calling systems, and staff training requirements in existing or new skills such as extubation and provision of high dependency care.
Conclusions: Improvements in care that can be addressed at the level of the individual, team or system, have been highlighted through the quality assured in situ simulation programme that has enhanced good practice within the PACU.
Take-home messages: In situ simulation is a feasible and flexible method to help identify and support professional development and quality improvement within the PACU setting.

10K/2
Clinical Software for Medical Simulation

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Background: There is no software available for clinical management of advanced medical simulation environments.
Summary of work: LaC - Clinical Skills Lab - has developed a software that allows for real time interaction, independently of the used simulator, allowing requisition and visualization of diagnostic tests as well as recording clinical data. This platform has two interfaces: one for students, used in the simulated ward, and another for instructors in the control room. In this manner, instructors can observe in real time records made by the students and send them the results of the required diagnostic tests, from a pre-loaded results package for each scenario.
Summary of results: The introduction of this platform increases the accuracy of the simulation. Students need to manage the patient's condition and, at the same time, they are subject to the same constraints they would be in real environment, by using this software. Data for each new entry is recorded. This can be used for feedback and debriefing purposes, behavioural study and performance assessment.
Conclusions: This tool facilitates the simulation with multidisciplinary teams, increasing the link between theory and practice. The possibility of giving oriented feedback to medical students has revealed itself essential.
Take-home messages: The use of electronic medical records software has a great potential to make clinical simulation more real, boosting medical students' skills.

10K/3
Extending simulation 'outside the lines': Outcomes of a randomised educational trial of extended immersive simulation for senior medical students

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Background: Many junior doctors worldwide feel ill-prepared to deal with their new responsibilities, particularly prescribing, but the use of extended multi-method simulation to emulate the junior doctor experience has rarely been reported.
Summary of work: Participants were randomised either to undertake two, week-long, extended simulations, several months apart (Intervention), or included workshops and seminars alone (Control) and assessed in relation to a range of outcome measures.
Summary of results: 84 third year students were randomised, of whom 82 completed the study. At the end of the first week, Intervention students scored a mean of 75% on a prescribing test, compared with 70% for Control students (P = 0.024) and Intervention teams initiated cardiac compressions a mean of 29.1 seconds into a resuscitation test scenario, compared with 70.1 seconds for Control teams (P<0.0001), but no significant difference was seen in tests of knowledge or clinical reasoning. At the beginning of the second week, about nine months later, a significant difference was still seen between the arms in relation to the prescribing test (78% vs 70%, P = 0.0004). At the end of the second week, significant Intervention vs Control differences were seen on knowledge (mean score 15.0/25 vs 13.3/25 [P=0.005]), reasoning (mean score 18.5/30 vs 17.3/30 [P=0.020]), a further prescribing test (71% vs 63% [P<0.0001]) and a paediatric resuscitation scenario test (252.0 seconds to initiation of fluid resuscitation vs 339.2 seconds [P=0.049]).
Conclusions: The study has demonstrated a definite educational impact from contextualising learning activities through extended multi-method simulation, with persistence of the benefit on prescribing skills for at least nine months.
Take-home messages: Extended immersive simulation enhances medical student learning from related workshops and seminars.

10K/4
Simulation for teaching respiratory emergencies

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Background: Emergencies are health problems that imply imminent risk of life or intense suffering and require immediate medical treatment. Students' skills for these situations are critical. Nowadays we can no longer accept that certain medical procedures do not contemplate various requirements and conduct evidence-based.
Summary of work: The main objective of this study is to evaluate the contribution to the knowledge and skills development of methods that employ the use of simulation to teach respiratory emergencies. To this aim we conducted an elective course for students of 3rd year of medical school. During this course were taught practical lessons for developing skills using mannequins (robots) that simulate respiratory emergencies, including thoracentesis and intubation. There was a pre-test and post-test to assess students' knowledge gain and a questionnaire to assessment of the course.
Summary of results: We observed a 40% average increase of right answers in the post-test compared to pre-test.
Conclusions: Simulation has proven to be a suitable method of teaching medical emergencies, but requires an active positioning of the medical student facing simulated situations. This methodology has benefits such as providing a safe environment to practice and error and the possibility of experiencing less frequent situations and promotes discussions and assimilations. We present results that suggest that Simulation is an appropriate method for teaching respiratory emergencies.
Take-home messages: Simulation must be considered for teaching respiratory emergencies.

10K/5
A novel and integrated tutor function in the Visible Ear Simulator provides better learning compared to traditional dissection training of ORL residents

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Background: Temporal bone dissection is one of the key skills for the otorhinolaryngology resident in training and has traditionally been taught to residents through cadaveric temporal bone dissection. The Visible Ear Simulator is a freeware virtual temporal bone simulator with an integrated and intuitive tutorial function based on a volumetric approach that can be used to obtain these essential temporal bone skills.
Summary of work: During the Danish course on "the middle ear" for residents training in otorhinolaryngology 17 participants in January 2012 and 17 participants in January 2013 performed a virtual mastoidectomy on the Visible Ear Simulator using the integrated tutorial function followed by a mastoidectomy on a cadaveric temporal bone with traditional instruction. Two expert raters did an end-product analysis of the mastoidectomies using a modified Welling Scale.
Summary of results: We found a significant correlation between the virtual simulation and the dissection end-

product performance. The mean end-product score of the virtual mastoidectomies was found to be significantly higher than the dissection scores even though the participants did simulator training first. We suggest that the integrated tutor function of the simulator reduces the cognitive load of the participants and provides superior learning compared to traditional instruction.

Conclusions: The Visible Ear Simulator is a freeware virtual temporal bone simulator that offers an effective integrated and intuitive tutor function superior to traditional instruction for acquiring basic temporal bone skills.

Take-home messages: Cognitive load reduction and a novel tutorial approach in virtual surgical simulation can help teach residents essential but complex skills.

10K/6
Surface electromyogram differs significantly before and after laparoscopic training

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Background: Assessment of performance for complex motor tasks is challenging. Evaluation of outcomes is possible but not how the goals were achieved. Activation of neuromuscular system (NMS) measured by multichannel surface electromyography is used for assessment of complex motor tasks. During laparoscopic training even on box trainer direct supervision is the only viable option if excluding self directed learning based on learning on own mistakes of trainee.
Summary of work: Surface EMG recorder (EMG USB, OTBioelettronica Torino, Italy) with especially designed array (16 circumferential electrodes) was used on 15 previously untrained volunteers. We measured at predefined spots on the neck and upper extremities during performance of predefined laparoscopic drills. sEMG signals were recorded and compared between baseline (rest), intracorporeal suturing exercise before training (T1) and after training (T2). Parameters of amplitude and frequency were analysed.
Summary of results: There has been a significant difference between rest vs T1(p<0,05); rest vs T2(p<0,01), T1 vs T2 (p<0,05) for all subjects in paired and pooled analysis. In pooled analysis there was significant inter subject variability leading to large SD.
Conclusions: Surface electromyogram differs significantly between trained and not trained. Algorithms should be developed to use this as feedback during training.

Take-home messages: Modern technology has potential to help in laparoscopic training.

10K/7
An Invention of Umbilical Vein Catheterization model (UVC model) from discarded umbilical cords

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Background: Umbilical Vein Cathetherization is an essential skill for physicians in neonatal care. Indications for UVC are neonatal resuscitation in the delivery room, intravenous fluid, transparenteral nutrition or blood exchange. This skill is limited to training as it needs to be applied to newborns only. The invention of a UVC model from discarded umbilical cords can help train medical professionals for a low cost employing real umbilical cords and a realistic approach.
Summary of work: A discarded umbilical cord was received from a delivery room by a non-infected mother who gave consent for its use in medical learning. It was cut to 5-10 cm length and fixed within the neck of normal saline bottle. The held umbilical cord was then inserted into a 1,000 ml NSS bottle with 700 ml containing red dyed water. The skin of the UVC model was built from another material and with removable base of the model for cleaning purposes after use.
Summary of results: The finished UVC model was used for teaching medical students, extern and intern for UVC insertion, blood exchange skill and medical students in group teaching. Using the model before and after was reported 85.6 % and 94.0% level of satisfaction in the model's structural and 85.2% and 95.2% in model's effectiveness. The cost of this UVC model was less than US$ 5 with respect to a commercial model which normally costs ca. US$ 500 - 1,000.
Conclusions: The invention of UVC model was a low cost simulator which can be applied by medical students, interns or health personnel. Employing previously discarded umbilical cords together with basic materials available in every hospital, any medical school can construct this training aid model simply.
Take-home messages: Every medical school can invent this UVC model for health personnel training, effectively and realistically at a very low cost.

10L Short Communications: Gender
Location: Club C, PCC

10L/1
Show what you know, and deal with stress yourself: A qualitative study of Dutch medical interns' perceptions of stress and gender

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Background: Physicians face stressful working conditions, medical students already report high stress levels. Despite the influx of female medical students and physicians, medicine is still described as having a patriarchal culture. Such a culture favors aspects such as physicians' certainty and rationalism, also referred to as the 'masculine protest' against admitting to vulnerability in the face of human suffering. Gender differences in stress are reported, but not much is known about students' perceptions of gender aspects in relation to stress.
Summary of work: We explored how Dutch medical interns experience and perceive stress among themselves, their colleagues and among their supervisors, as well as how they perceive that gender plays a role. In 2010-2011, semi-structured qualitative interviews were conducted with seventeen Dutch medical interns, male and female. Interviews have been analyzed thematically.
Summary of results: Stress evolves mainly from having to prove themselves and show off competencies and motivation (Show What You know…). Interns seek own solutions for handling stress because stress is not open for discussion (… And Deal With Stress Yourself). Female students are perceived to have more stress and study harder to live up to expectations. To them, part-time work seems a way out of stress.
Conclusions: The implicit message interns hear is to remain silent about insecurities and stress. Female students might face disadvantages by this culture.
Take-home messages: Students who feel less able to internalize the masculine protest may benefit from a culture that embraces more collaborative styles such as open conversation about stress.

10L/2
A systematic approach to integrate gender medicine issues and concepts during the planning and implementation phase of an outcome-based medical curriculum

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Background: Charité - Universitätsmedizin Berlin started to introduce a new curriculum in 2010, which has been employed to systematically integrate gender issues and concepts in an interdisciplinary, modular and outcome-based curriculum. The aim was to integrate relevant gender aspects into the 4 disease model modules of its 5th semester during the curriculum development process.
Summary of work: Prior module planning, relevant gender issues were selected according to intended medical subjects of the four modules. These are "infection", "neoplasia", "interaction of genome, metabolism and immune system" and "pain and mind as disease model". Corresponding gender-related learning objectives were prepared. The selected gender aspects were then incorporated into the curriculum through active participation in the module planning groups and close counselling of the individual course planners and module group members.
Summary of results: Important gender issues were broadly integrated into the disease model modules of the 5th semester as compulsory gender-related courses, teaching content, learning objectives and students´ assessment and feedback. Gender sensitive language was implemented in all of those modules as well.
Conclusions: Implementation of gender aspects into a new curriculum can effectively be achieved by a systematic approach including focused subject selection, formulation of gender learning objectives, active participation in the committees involved in curriculum design as well as close counselling of and cooperation with individual faculty members.
Take-home messages: Our new study programme may serve as practice model for integration of gender medicine issues and concepts into an integrated, outcome-based curriculum.

10L/3
Anamnesis and Gender - a Pilot Project for Improving Medical Training

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Background: With the large number of students enrolled at medical universities many courses are taught with lecture-style instruction, giving only limited opportunities to directly apply and practice course contents. A pilot project worked out new innovative teaching and learning methods for anamnesis and gender. The project aimed to design on a small budget a flexible teaching method for big groups where students can use their newly acquired knowledge as realistically as possible, all learning channels are involved and knowledge input and applications are well-balanced.
Summary of work: With a clinical psychologist, students drew up a gender-sensitive anamnesis questionnaire for use in clinical practice and a new, very practice-oriented teaching format that is now used to teach Gender Medicine.
Summary of results: In addition to the new course format offering personal training and reflection for 350 students and a gender-sensitive anamnesis questionnaire already used in clinical routine, we now have a reflection sheet for students and a manual providing background information and literature.
Conclusions: The factors that contributed to the project's success were active participation by the students, the project's processual makeup, where several feedback loops were used to test the development of the new teaching method and the practical application of the developed anamnesis questionnaire for their suitability for use, and successful interaction between project participants, doctors and patients.
Take-home messages: The development of new teaching concepts jointly with the parties involved and early student participation in further developing concrete problems contribute to improving learning success.

10L/4
Gender Awareness of first year medical students at the Medical University of Vienna

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Background: In order to improve the quality of health care for both men and women, awareness of sex and gender in illness and health is essential. Implementation of sex and gender aspects in medical education is therefore needed. The aim of this study is to survey the students' attitudes to gender and gender stereotyping in the first year medical studies at the Medical University of Vienna.
Summary of work: 583 first year medical students (44% male, 56% female) completed the validated "Nijmegen Gender Awareness in Medicine" Scale. The questionnaire consists of the subscales gender sensitivity, gender role ideology towards patients and gender role ideology towards doctors.
Summary of results: A pronounced sensitivity towards gender issues appeared in both sexes, which is comparable to other international studies. Further, results show highly significant sex differences in the subscales gender role ideology towards patients as well as towards doctors, with male students agreeing more with stereotypical statements. However, no significant sex differences were found in the ability to be open towards gender issues in the medical field.
Conclusions: Male students show more stereotypical thinking towards doctors and patients than female students. This should be considered in medical education. It is of further interest if and how gender awareness in medical students change over the years of medical studies.
Take-home messages: Differences between male and female students in gender awareness need to be taken into account when implementing gender aspects in the medical curriculum.

10L/5
The gender climate in medical students' clinical training – A focus group study conducted in Sweden

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Background: There is increasing recognition about the importance of gender perspective in medical education. The aim of this study was to explore the gender climate in medical students' clinical training, i.e., how attitudes and values of men and women are expressed and communicated at wards and outpatient clinics.
Summary of work: Medical students from the three last terms at Umeå University medical school, Sweden, were invited to participate in this qualitative study. Eighteen students (15 women) participated and were divided into four focus groups. Two interviews were held with each group. The interviews were analysed by means of qualitative content analysis.
Summary of results: Initially students' described difficulty recalling situations related to gender, but as the interviews proceeded the participants' depicted many personal experiences. Two themes emerged. The first "Type situations where gender played a role" consisted of the categories 'Comments & Sexist jargon', 'Different treatment', 'Stereotyped expectations' and

'Gender emphasized in a positive manner'. The other theme, "Reactions and ways of coping", contained the categories 'Diminishing and denying', 'Adapting and manoeuvring', and 'Taking action'. Students were concerned about that adapting to sexist jargons and inequity implied reconstructing gender hierarchies disfavouring women.

Conclusions: Students are dependent on teachers and staff and taking action for change is difficult. Medical school leaderships have a duty in watching for a good gender climate.

Take-home messages: To reduce gender stereotyped and biased treatment of medical students, teachers, tutors, as well as students, need more knowledge and awareness about gendered processes in health care.

10L/6
Gender violence against medical students at Faculty of Medicine, UNAM, Mexico

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Background: In Mexico, violence against medical students (MS) has not been studied from a gender-based perspective; it has been informally reported at the Faculty of Medicine, UNAM.

Summary of work: Our objective was to confirm the existence of gender violence and sexism against MS, to find out the kind of violence performed, identified the aggressor and students' meaning about violence. This study was authorized by Faculty's Research and Ethical Board. Methodology: We carry on an exploratory qualitative research based on symbolic interactionism and gender perspective. We did four focus group interviews among male and women MS after written inform consent. Each interview lasted around 90 minutes, all of them were videotaped, recorded and transcribed, codified by grounded theory and analyzed through a feminist education perspective.

Summary of results: We confirm the presence of gender violence, sexism, gender discrimination and sexual harassment during medical internship. Violence against women was more frequent, mainly exert for male professors and residents; but also from women professors and residents, nurses and patients; sexual harassment was mainly exert by men; verbal and psychological violence came from men and women. Physical violence against men students came more frequently from male professors and residents; sexual harassment was not as frequent. Chronic violence affects their physical and mental health. The highest incidence was reported in Emergency room, Gynecology and Surgery departments. Institutional structure violence was observed. Students assessed violence as a personality feature and not as a socially structured problem.

Conclusions: Gender violence against MS is an educational and social problem that must be attended to.

Take-home messages: Gender violence against women is an important matter, it´s present and must be studied to prevent it.

10M Short Communications: Student Engagement
Location: Club D, PCC

10M/1
Feedback on Feedback: Student Perceptions of Feedback on Teaching Requested by a large UK Medical School

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Background: The UK National Student Survey of medical students highlighted suboptimal communication, organisation and feedback processes. We explored penultimate year student perceptions of feedback requested by King's College London School of Medicine (KCLSM), focusing on three areas: the feedback process, its utility, and student awareness of faculty responses.
Summary of work: A 'Survey Monkey' e-questionnaire was administered to 390 students in February 2013. A Likert scale was used enabling a discrete gradation of answers.
Summary of results: There was a 26% response. 45% of respondents felt that sufficient feedback requests were made. Despite having ample opportunities to provide feedback, 38% of these students felt that their feedback was not being used effectively, and 40% felt that changes were not being made based on their feedback. However, most students' opinions were neutral regarding how effectively feedback is used by faculty. The respondents (60%) either disagreed or strongly disagreed with the statement "The medical school has made me aware of how they're using my feedback."
Conclusions: Based on our results, students are content with opportunity to provide feedback. The majority of students feel that the medical school does not communicate its response to the student feedback, be it curricular or organisational change. Requests for feedback are adequate at KCLSM, however communication regarding what is done with feedback by faculty needs substantial improvement.
Take-home messages: Two-way communication between the medical school and the student body is an area for improvement, albeit in partnership with the student cohort, as an integral part of educational best practice.
Acknowledgements: Kubota-Sjogren Y, Bekri I

10M/2
Developing a System for Effective Student Representation in a Large Medical School

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Background: Manchester Medical School (MMS) is among the largest in the UK with over 2300 students learning in four different base hospitals (sectors). Until 2011, student representation was fragmented, with independent systems for each sector, and for the programme as a whole. This compromised the effectiveness of student representation and highlighted the need for a streamlined system.
Summary of work: In the new structure, student representatives are elected and receive support from an academic and an administrator. The representatives based centrally take on a leadership role, liaising with sector representatives to identify issues affecting the student experience. These are constructively discussed at regular staff-student liaison meetings. Good practice and unresolved issues are brought to biannual Staff-Student Assurance Committees to which senior academics and administrators are invited.
Summary of results: This system allows all students to contribute to improvements and developments of the programme through their representatives. Contributions by the representatives are consistently commended by staff. Examples of improvements made include the formation of an anatomy focus group, written feedback from OSCEs, and development of e-portfolio.
Conclusions: MMS' improved student representation system has enabled students to contribute effectively to Quality Assurance of the MBChB programme. A robust team structure, defined responsibilities, clear lines of communication and a code of conduct ensure effective representation by students in all aspects of a complex MBChB programme.
Take-home messages: Large medical schools should involve students in Quality Assurance of their programmes.

10M/3
Valuing students – using appreciative inquiry to develop student representation

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Background: We have been working for many years to ensure that the students are involved in the decision

making and running of the MBChB programme. Despite our best efforts, and the active involvement of students in our most senior committees, some of our students feel a lack of engagement with the medical school (IPSOS MORI. 2011. National Student Survey: http://www.thestudentsurvey.com/).

Summary of work: We undertook an action research study, using appreciative inquiry, to identify the issues that impacted upon student representation in our school. In the first part of the study two focus groups discussed the issues ("discover" and "dream" phases: Cooperrider, D. L. & Whitney, D. 2001. A positive revolution in change: Appreciative inquiry. Public Administration and Public Policy, 87, 611-630). One group was drawn from the active student representatives, the other from students in years 1, 3 and 5 of our five-year MBChB programme who were not directly involved as representatives.

Summary of results: The discussions were analysed thematically, and also provided the base-line information for a further meeting of the student representatives to design, and plan for the delivery of the future representation model.

Conclusions: The study yielded improvements to the student representation system, but had two other take home messages, which will be discussed.

Take-home messages: The first is that appreciative inquiry is an effective method of empowering students to improve existing systems. The second is the power of the narratives that students use to make sense of their experiences.

10M/4
Engaging students in e-learning technology: PeerWise

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Katherine Cameron (University of Glasgow, School of Medicine, Glasgow, United Kingdom)

Background: PeerWise is a free piece of innovative online software. It provides a platform for any cohort of students to formatively write, answer, comment on and rate MCQs created by their peers. PeerWise has little staff involvement and is aesthetically similar to popular social networking sites.

Summary of work: PeerWise was implemented into the first year undergraduate curriculum in the medical, dental and veterinary science cohorts at the University of Glasgow. Different methods of engagement were organized for the 3 cohorts, ranging from compulsory to voluntary. Usage data collected from the software included timing, questions written and general descriptive statistics. Additionally, a 5 point Likert questionnaire with free text comments was issued and focus groups were conducted.

Summary of results: Between the 3 cohorts there were 481 students, on average writing 3.9 questions, (Total = 1650). Students answered an average of 190 each (Total = 88,790). These numbers varied widely between the cohorts. Students participating voluntarily were less likely to write, though equally likely to answer. All cohorts participated most before assessments and reported similar strengths and weaknesses. Students valued the software for revision, but raised concern around lack of staff input. Comparison of PeerWise use with summative exam results revealed no significant correlations.

Conclusions: Cohorts who used PeerWise on a compulsory basis engaged with the software more. Most students rated PeerWise positively, and would use it again. Students would prefer staff involvement and some issues identified will require consideration in future use. Currently, there is no evidence that engagement in PeerWise significantly enhances summative exam performance.

10M/5
Patients' perceptions upon student-based care followed by supervision

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Ara Tekian (University of Illinois at Chicago, Medical Education, Chicago, Illinois, United States)

Background: As part of clinical training in ambulatory settings at a public Brazilian medical school, undergraduate medical students frequently see patients alone, then discuss their findings with supervisors outside the consulting room, before returning to the patient with suggested management strategies.

Summary of work: The aim of this study was to assess patients´ perceptions of student-based care supported by preceptor supervision outside the consultation room. We performed a cross-sectional study and intervention, with a convenience sample of first-time obstetrical patients presenting at High-Risk Antenatal Outpatient Care. The intervention was special training programme on communication skills for fifth and sixth year students, focusing on patient-centeredness. A Likert scale questionnaire focusing on patients' satisfaction and the perception of students' performance during the consultation was administered by medical students not involved in providing patient care, pre- and post intervention. An open-ended question requested

patients to write three words representing what they felt BEFORE and AFTER being consulted.

Summary of results: All 52 women attending first-time consultations during the study period participated. Prior to initial consultation, 20% of the patients were not sure if they would feel comfortable being examined by medical students, or trust them; however, after receiving care, 100% "strongly agreed" on a five point-scale that they were comfortable and trusted the students. Using associative network methods, "anxiety" and "fear" were the most frequently words cited pre-consultation, whereas "calm", "trust" and "satisfaction" were the most cited words post-consultation.

Conclusions: Our results indicate that 100% of the patients were comfortable and trusted the student-based care. This study provides strong evidence that a suitable intervention to prepare students for consultations will increase patient satisfaction.

Take-home messages: Early investment in the student-patient relationship can reduce patient anxiety and improve patient care, especially as the students have the opportunity to spend more time with their patients than their supervisors.

10M/6

Screening Programs for Non-Communicable Diseases (NCDs), (Diabetes Mellitus and Hypertension) in Dominica by University Medical Students as part of the Students Community Exposure

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Yasmin Burnett (Ross University School of Medicine, Introduction to Clinical Medicine, Portsmouth, Dominica)
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Background: Ross University School of Medicine is a United States (US) medical school based on the island of Dominica in the Caribbean, where four semesters of pre-clinical education is done prior to the two years of clinical rotations which is done in the US in accredited hospitals. Students are exposed to patients early in their training, and in their third semester are rotated to twenty–one clinical primary care sites on the island where they begin their history taking activities and learn how to perform a limited physical examination.

Summary of work: Students were participants with the authors in completing a standardized questionnaire on blood pressure and blood glucose levels for a randomized sample of volunteers. Ages 17-89 during six (6) health fairs in the period 2009-2011. This presentation reviews the data relating to Diabetes Mellitus and Hypertension using the measurements of >140/90mm Hg for high blood pressure and for blood glucose according to the American Diabetes Association, 70 – 130 (mg/dL) before meals, and less than 180 mg/dL after meals.

Summary of results: Screened 532 individuals over a two year period for Diabetes Mellitus and Hypertension. 24% were diagnosed as having high blood pressure and 31% were diagnosed with high blood sugar.

Conclusions: Medical students are being trained and taught even in developing countries to promote health and managed these conditions associated with the trends in developed countries.

Take-home messages: Public health policy in Dominica has to change to focus on those NCDs.

10N Short Communications: The Teacher
Location: Meeting Room 2.1, PCC

10N/1
Analogies across professional boundaries

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Background: The learning of practice-based knowledge can be challenging, especially when it is carried out in a learning environment where several processes are involved and several individuals are taking different roles in a team. Surgery is an example of such an environment and so is conducting an orchestra. The teaching of students in such environments can be challenging and the process of learning is often not explicit (e.g. Moulton et al 2010).
Summary of work: In the following project a surgeon teacher and an orchestra conductor teacher were involved in an exchange program visiting each other's teaching on three occasions each during one semester. Each visit was prepared by written reflections on aims and goals for the visitor as well as the 'host' and followed by an evaluative discussion that was recorded. Students filled out a questionnaire and were interviewed at the end of the project.
Summary of results: The results of the project consisted of two narratives written on the part of the two participants. Analysis of the narratives made visible the analogies between the two roles in terms of pedagogical leadership.
Conclusions: Through the eyes of a visitor, educational leadership can be made explicit in a way that facilitates the articulation of similarities and differences in practical learning. A model for making teaching practice explicit.
Take-home messages: By engaging in critical friend exchange programs across professional boundaries implicit strategies for teaching can be made explicit and shared with colleagues in communities of practice of the participants.

10N/2
Is there an association between involvement in education and quality of clinical care? Reflections from an expert consensus panel

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Background: There are known, important variations in the quality of primary health care. A range of approaches are used in efforts to reduce variations and improve quality (e.g. clinical audit, financial incentives). Less attention has been paid to whether participation in undergraduate and postgraduate medical education may have an indirect role in improving quality. Is there an association between education and quality of care? What mechanisms may explain the association?
Summary of work: We will present findings from an expert consensus panel of primary care educators to examine the relationship between routinely available quality indicators and factors relating to practice participation in education. Panellists will independently rank indicators for quality of care and education involvement to define the key measures and help identify other predictors of quality of clinical care.
Summary of results: We will present the initial results of statistical analyses applied to the data sources identified, and the reflections of the expert consensus panel and lay advisors as to the plausibility of relationships identified and possible causative mechanisms. From these initial results a model will be developed to explain any associations between educational involvement and quality of clinical care whilst accounting for other predictors of quality using latent variable modelling techniques.
Conclusions: As healthcare provision changes healthcare commissioners and providers may demand convincing evidence of the likely benefits of participation in education.
Take-home messages: There are known variations in clinical quality in primary care settings. Participation in education may indirectly help improve care quality. Associations and possible mechanisms for these will be presented.

10N/3
Standards for clinical teaching and how well they are met in one English region

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Robert Norman (University of Leicester, Department of Medical and Social Care Education, Leicester, United Kingdom)

Background: Standards for clinical teachers, consistent with the AMEE charter for medical teachers in the key areas of the educational process (preparation, delivery, teacher conduct and student management and; on development and appraisal) were drafted and piloted. They were found to be acceptable to medical teachers and students. As part of a wider regional study to establish the levels of teaching undertaken by clinical

staff, we also examined how many were meeting the standards outlined in the above document.

Summary of work: A study specific on-line survey was designed and administered in Spring 2012. The standards were presented as statements and respondents asked, using a Likert Scale, if they were doing the activity defined as part of their teaching practice. Data was analysed using SPSS 20.

Summary of results: The survey was completed by 518 consultants (25.8 % response rate). There was between 23 and 95% agreement by respondents that the various standards outlined were being met. Just over three quarters agreed that they prepared effectively; around 95% agreed with statements regarding receipt of feedback from peers but just under a third were peer observed in teaching practice. Most respondents indicated teaching was not adequately resourced and attracted variable support.

Conclusions: Respondents indicated that they were meeting most of the standards, although this was not corroborated. This indicates that the standards may be usable for appraisal purposes to support clinical staff contribution to teaching.

Take-home messages: The standards could help improve resources and support for clinical teaching and teachers.

10N/4
Does teaching make you a better physician?

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Carol Hodgson (University of Alberta, Medical Education, Edmonton, Canada)
Bruce Fisher (University of Alberta, Medicine, Edmonton, Canada)

Background: To examine whether physician involvement in teaching activities is associated with level of clinical performance.

Summary of work: This study drew on performance data from a multisource feedback (MSF) dataset from medical colleagues, co-workers, and patients for family physicians; medical specialists (e.g. internal medicine, pediatrics, and psychiatry and their subspecialties); and surgeons. MSF data were examined in relation to information about physician teaching activities including time spent teaching in patient care and in the classroom, and academic appointment information. We examined between group differences employing multivariate analysis of variance (one and two way MANOVAs) with MSF total instrument mean and MSF instrument subscale mean performance scores and the teaching and appointment data.

Summary of results: Data from 1,831 family physicians, 1,510 medical specialists and 542 surgeons were available for analysis. Higher clinical performance scores were associated with having an academic appointment, and with more time spent teaching in patient care and in the classroom. This was evident for the data from medical colleagues and co-workers, less so for patients. It held across all specialty groups, albeit, with some differences.

Conclusions: This study provides evidence of the association between involvement in teaching activities and higher levels of clinical performance. These results may support revalidation decisions that award study credit for teaching and enable Faculties of Medicine to highlight the importance of teaching to potential recruits and the maintenance of a clinical practice by teachers.

Take-home messages: Teaching activities may protect clinical skills and result in better performance. Conversely, more skilled physicians may be attracted to teaching roles.

10N/5
Development of a web-based multisource-feedback tool for teachers

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Th J ten Cate (University Medical Center Utrecht, Center for Research and Development of Education, Utrecht, Netherlands)

Background: Competent teachers are indispensable in obtaining high quality education. Feedback plays a crucial role in encouraging teachers to think about their performance and ways of improving it. Single evaluation sources, like student evaluations, provide valuable insights, but by using multiple sources a broader picture on teaching capacities could be formed.

Summary of work: University Medical Center Utrecht (UMCU) developed a web-based multisource feedback (MSF) instrument to collect feedback from different sources. Eleven tasks teachers can have in medical education are predefined in the tool. For each of those tasks five key questions were defined and linked to the competencies of communication, organisation, collaboration, professional expertise, and teaching skills. The tool was presented to and discussed on with 40 experienced teachers.

Summary of results: Teachers reported a high face validity of the tool. It was derived from, and promises to be as user friendly and effective as the UMCU-developed MSF tool for residents, used since 2008 (Ten Cate & Sargeant, 2011). The collected and aggregated multisource feedback on teaching was estimated to be very valuable. Teachers indicated that the information leads to enhanced reflection and self-directed learning.

Conclusions: The web-based MSF-teaching tool is designed to provide an overview of teacher performance and to foster reflective behaviour and self-directed learning. The tool was found useful to collect feedback from a variety of sources on different teaching tasks.

Take-home messages: Collecting multisource feedback provides teachers with information on their teaching skills and stimulates reflective behaviour and self-directed learning.

10N/6

Tutoring medical students during early clinical training. Recognition of relevance of the teacher's facilitator role

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Background: Tutoring medical students require a variety of competencies and attributes. While the information provider role is important in early years of medical education and the model role fundamental in later years of clinical training, it is not clear which role is the most important to be a good clinical tutor in students' early clinical training.

Summary of work: To describe perceptions of clinical tutors about teacher's roles in the early clinical training, eight clinical tutors were interviewed. These interviews were analyzed using Grounded Theory.

Summary of results: Clinical tutors identified four roles, which facilitate learning teaching in early clinical training: information provider, role model, facilitator and evaluator. The facilitator role was the most often mentioned, and includes, according clinical tutors, activities such as selection of patients to be interviewed by students, planning activities for students, giving them autonomy, feedback and support in the maturation of knowledge and skills, as well as motivating them, amongst others.

Conclusions: Clinical tutors recognized the facilitator role as particularly important in early clinical training of medical students. Most of the components of this role were identified as consistent with the student-centred educational approach.

Take-home messages: In student-centred education, facilitator role should be considered as a desirable area of expertise to be developed when tutoring in early clinical training.

10O Workshop: Introducing a practical guide to sequential testing: Realising educational and economic benefits
Location: Meeting Room 3.5, PCC

Richard Fuller (School of Medicine, University of Leeds, Leeds Institute of Medical Education, Worsley Medical & Dental Building, Leeds LS2 9JT, United Kingdom)
Godfrey Pell (School of Medicine, University of Leeds, Leeds Institute of Medical Education, Leeds, United Kingdom)
Matthew Homer (School of Medicine, University of Leeds, Leeds Institute of Medical Education, Leeds, United Kingdom)

Background: Institutions have conflicting pressures of quality, feasibility and cost in the assessment of students. Students desire fair assessment processes ideally completed by all in a single academic year. This usually takes the format of assessment of the whole student cohort, followed by a period of remediation and retesting for those who underperform. However, underperforming candidates are not a homogenous group and considerable difficulty persists in accurately identifying and profiling these 'at risk' students. Emergent work also reveals that traditional models of test-remediate-rest may not lead to sustained long term improvement in performance for these students, raising major implications in assessment policy for educational institutions (Pell et al 2009; Hauer et al 2009).
Intended outcomes: Participants will explore theoretical and practical applications of sequential testing methodology, and gain confidence in practical approaches to managing cost-benefit analyses and quality issues in assessment policy. The workshop will conclude with a 'toolkit' to help participants in implementing 'take home lessons' in their own institutions
Structure of workshop: This interactive workshop will overview existing literature in this area, and the impact on assessment strategies and methodologies for underperforming students vzv. competent students. The development of sequential test methodologies, based on regression towards the mean phenomena (Bland & Altman, 1994) will explore a way of meeting this challenge
Who should attend: This workshop has particular significance for those responsible for the design and delivery performance based assessment
Level: Intermediate

10P Workshop: FAIRness and teaching on the clinical placement
Location: Meeting Room 4.1, PCC

Philip Chan (University of Sheffield, Medical School, Beech Hill Road, Sheffield S10 2RX, United Kingdom)

Background: Student learning on clinical attachments is highly variable, and does not usually take into account the students' learning needs. Teaching traditionally takes the form of a bedside interrogation, or, as groups increase in size, a classroom presentation. Students' own work and performance and not often scrutinised, and opportunities for improvement therefore pass by unused. The clinical attachment faces many challenges; including increased student numbers, increased clinical specialisation and lack of "general" clinical experience, changing roles, work patterns and attitudes of hospital junior staff and consultant teachers, and increasing expectations of students. Over many years, we have evolved a clinical attachment based on the principles of FAIRness (Harden); which are feedback, active learning, individualisation and relevance. This model has some potential to address current shortcomings and future challenges to the clinical placement as a learning experience.
Intended outcomes: This workshop is intended to encourage reflections and exchange ideas on the current shortcomings and future challenges of the clinical placement as a learning experience; to share innovative approaches to problems with clinical teaching and to consider a model of improvement, based on the underlying concept of FAIRness.
Structure of workshop: The workshop is presented largely by student facilitators, who use real clinical work examples to re-create the actual learning sessions that are used in our model.
Who should attend: It may be of interest to students, clinical educators, full time clinical staff with an interest in student education, curriculum planners, administrative staff with responsibility for clinical placements, and quality assurance professionals.
Level: Introductory

10Q Workshop: Teaching and learning clinical reasoning in everyday practice
Location: Meeting Room 4.2, PCC

Ralph Pinnock (James Cook University, Child and Adolescent Health, Clinical School, The Townsville Hospital, Townsville 4811, Australia)
Fiona Spence (University of Auckland, Learning Technology Unit, Auckland, New Zealand)
Marcus Henning (University of Auckland, Centre for Medical and Health Sciences Education, Auckland, New Zealand)
Wayne Hazell (Prince Charles Hospital, Emergency Department, Brisbane, Australia)
Louise Young (James Cook University, Rural and Remote Medicine, Townsville, Australia)

Background: Clinical reasoning is one of the clinician's most important skills and continues to present a challenge to educators and clinicians. The dual-process model of clinical reasoning proposes an iterative process of hypothesis generation, often with pattern recognition and analytical hypothetico-deductive reasoning. Clinical reasoning is learnt in the workplace. Experienced clinicians use rapid tacit cognitive reasoning processes and often find it difficult to slow down and explain how they are thinking when working in a busy clinical environment; because of this they often find clinical reasoning difficult to teach.
Intended outcomes: Know the current theories of clinical reasoning, understand how to use virtual patients and be able to teach clinical reasoning in everyday practice.
Structure of workshop: A review of the history of the development of clinical reasoning will be followed by an explanation of the dual process theory using examples from the presenters' and participants' clinical practice. Participants will make virtual patients to convert their clinical experiences into clinical reasoning exercises. Examples of common errors in clinical reasoning will be discussed. By making use of the 'think aloud' technique of verbal protocol analysis participants will learn how to teach clinical reasoning during supervision of students and residents in every day practice.
Who should attend: Doctors and nurses who wish to learn how to teach clinical reasoning in their daily practice. Participants will be invited to bring two cases from their practice to use during the workshop
Level: Introductory

10R Workshop: Facilitating interprofessional education and collaboration through interactive teaching
Location: Meeting Room 2.2, PCC

Marie Eason Klatt (St. Joseph's Health Centre, Occupational Therapy, 30 The Queensway, Toronto M6R 1B5, Canada)
Farah Moid (St. Joseph's Health Centre, Laboratory Medicine, Toronto, Canada)
Suzanne Wong (St. Joseph's Health Centre, Obstetrics-Gynecology, Toronto, Canada)
Jerry M Maniate (St. Joseph's Health Centre / University of Toronto, Medical Education & Scholarship, Toronto, Canada)

Background: Interprofessional learning requires the formation of new mental constructs through social interaction and collaboration with members of different healthcare professions. Facilitation of this new learning necessitates recognition and appreciation of the unique socialization of healthcare professions and creation of learning opportunities where positive interaction can occur. The interprofessional education (IPE) facilitator is challenged to initiate learners in the process of incorporating interprofessional collaboration (IPC) competencies into their mental constructs, and ultimately their repertoire of behaviors to enhance patient care. Teaching methods which foster interaction are essential to successful development of IPC competencies such as knowledge of professional roles and responsibilities, communication skills, shared decision making and willingness to work together, appreciating differences, trust and mutual respect. Through interactive teaching and carefully crafted questioning using an appreciative focus, positive learning environments can be created where the impact of power relationships and organizational structure is lessened. Engaging in interprofessional learning facilitated by interactive teaching methods allows learners to openly voice their opinions and discuss options whilst building social connections that cross interprofessional boundaries.
Intended outcomes: Following this workshop, participants will be able to:
Apply constructivist learning theory to the development of IPE using various interactive teaching techniques
Appreciate the potential of these educational tools to enhance IPE/C
Identify strategies for implementing interactive teaching into continuing educational opportunities within healthcare organizations.
Structure of workshop: This experiential workshop will introduce participants to several interactive teaching techniques including an icebreaker, think- pair- share exercises, communication and team building games, breakout groups and a hands on trial of an Audience Response Technology (ART) system
Who should attend: Clinicians, Clinician-Teachers, Trainees, Clinician-Educators, Faculty Developers
Level: Introductory

10S Workshop: Live streaming and recording solutions for medical classes in an interactive environment
Location: Meeting Room 3.1, PCC

Philip Anner (Medical University of Vienna, Department for Medical Education, Spitalgasse 23, Vienna 1090, Austria)
Philipp Pavelka (Medical University of Vienna, Department for Medical Education, Vienna, Austria)
Andrea Praschinger (Medical University of Vienna, Department for Medical Education, Vienna, Austria)
Franz Kainberger (Medical University of Vienna, Department of Radiology, Vienna, Austria)

Background: Extending the reach of medical classes to remote locations is becoming an increasing factor for many educational institutions, be it because of limited room capacities or the need for distance or blended learning programs. Recent advances in information technology provide viable solutions to deal with such challenges. Together we will dig deeper into video live streaming & recording technologies and how to leverage them effectively with tools for interaction.
Intended outcomes: Attendees will receive a basic understanding of streaming solutions and effective communication channels for medical lectures. After attending this workshop participants will be able to set up a streaming solution on their own and will be able to act as consultants for their local ICT department.
Structure of workshop: At the beginning, basics of video techniques and video live streaming technology will be explained. This theoretical part provides the necessary fundamentals for the following hands-on lesson. An overview of freely available server and client software for live streaming will be given and afterwards attendees will implement a solution with the presented software themselves. Subsequently tools for efficient interactive communication in medical classes will be presented. Participants will have the opportunity to test and to combine them with their newly created streaming solution.
Who should attend: Technologically experienced persons interested in innovative and interactive learning solutions.
Level: Introductory

10T Workshop: Implementing best practices for intraining assessment - an institutional change management approach
Location: Meeting Room 3.2, PCC

Glen Bandiera (University of Toronto, Postgraduate Medical Education, 500 University Avenue, Ste 602, Toronto M5G 1V7, Canada)
Susan Glover Takahashi (University of Toronto, Postgraduate Medical Education, Toronto, Canada)

Background: In-training assessment is the foundation of the workplace educational model of clinical medical education. A good system relies not only on principled design of assessment instruments but also on the local context in which they are deployed. Numerous psychometric, logistic and socio-cultural challenges impede successful implementation. The literature provides direction in all of these areas. This workshop outlines a comprehensive evidence-informed approach to developing best practices for in-training assessment with a focus on institutional change management and broad uptake.
Intended outcomes: Participants will be able to:
Identify key issues that can undermine workplace-based in-training assessment and the literature base supporting these
Systematically design a process for developing and implementing an effective workplace in-training assessment system, and
Describe various models for monitoring and oversight of such a system.
Structure of workshop: The workshop will involve a brief review of the literature around in-training assessment, including original research from the local context of the presenters. Participants will then work in small groups to review a case study showing how to integrate evidence with local context to design an in-training assessment system. The workshop will finish with a general discussion of principles, questions and declared next steps for participants interested in changing assessment systems in their local environment.
Who should attend: Program directors, education coordinators, decanal members, and other education leaders interested in improving intraining assessment strategies.
Level: Intermediate

10U Workshop: Complex Learning and CPD: Linking Educational Design to Outcomes
Location: Meeting Room 3.3, PCC

Don Moore (Vanderbilt University, Division of Continuing Medical Education, 320 Light Hall, Nashville 37232, United States)
Maureen Doyle-Scharff (Pfizer, Inc., Medical Education Group, New York, United States)

Background: Continuing medical education and continuing professional development (CME/CPD) are being challenged to show results. Despite a considerable amount of research and some limited advances, it is unclear if CME/CPD is routinely delivering the outcomes that society, organized medicine, and health care institutions expect: improved performance of physicians and other health professionals. There has been an increased focus on measuring outcomes but this has not been accompanied by an equally important emphasis on educational planning for results. Desired outcomes just don't happen; they must be planned for. Van Merrienboer and Kirschner have recently published a book entitled Ten Steps to Complex Learning which describes an evidence-based approach to educational planning that could provide what CME/CPD needs to create the desired outcomes. At the annual meeting of the Global Alliance for Medical Education (GAME) in June 2013, attendees participated in active learning modules to use the new Ten Steps model to plan an educational activity to help clinicians achieve desired outcomes in managing patients with diabetes.
Intended outcomes: After participating in this workshop, attendees should be able to describe and discuss:
The ten steps approach to instructional design
The relationship between educational planning and outcomes
Strategies to focus educational planning on outcomes in their educational practice
Structure of workshop: Instructional plan: The workshop will have four parts:
Summary of the GAME workshop and its results.
A small group inquiry-based exercise to examine the relationship between educational planning and outcomes.
Discussion: sharing the results and developing a consensus.
Constructing an action plan.
Who should attend: educators, deans, department chairs, faculty in academic institutions and medical associations, and other educators, clinicians and researchers interested in educational design and its relationship to achieving desired outcomes.
Level: Intermediate

10Y Workshop: Train the trainer in team with meta-simulation: different faculty roles and major pedagogical components during high fidelity simulation
Location: Meeting Room 4.3, PCC

Fremen Chih-Chen Chou (China Medical University Hospital, Department of Education and Department of Emergency Medicine, #2, Yu-de Rd. North District Taichung 40447, Taiwan)
Chih-Wei Yang (National Taiwan University Hospital, Department of Medical Education and Department of Emergency Medicine, Taipei, Taiwan)
Cheng-Ting Hsiao (Chang Gung Memorial Hospital Chiayi Branch, Department of Education and Department of Emergency Medicine, Chiayi County, Taiwan)
_Yi-Ju Fu_ (China Medical University Hospital, Department of Education, Taichung, Taiwan)

Background: Faculty development has been recognized as a crucial factor for the success of high fidelity simulation (HFS) training. Moreover, multi-disciplinary teamwork of faculties responsible for different aspects of tasks during HFS is the key to optimal operation of a HFS session. However, comprehensive faculty team training focusing on tasks of different faculty roles is currently lacking. Through facilitated discussion and meta-simulation, our workshop intends to identify the different faculty roles and major pedagogical components during a HFS session.
Intended outcomes: Participants are able to: 1. Identify the needs of different faculty roles in HFS; 2. Point out the major pedagogical components that constitute an effective HFS; 3. Discuss how the different faculty roles work collaboratively on those pedagogical components to achieve the learning objectives.
Structure of workshop: 1. Introduction of workshop, organizers and participants (10 min); 2. Activity I (10 min): Ask participants buzz group to generate the possible faculty roles and the course structure of HFS according to their experiences; 3. Introduction of each role in a faculty team and the pedagogical components of HFS training (20 min); 4. Activity II, Meta-simulation (35min): Participants experience a HFS and metacognitively reflect on the faculty roles and their collaboration on the pedagogical components of the course with the provided observation tool; 5. Reflection, discussion and summary (15min).
Who should attend: Participants with interest in HFS, especially who want to improve the effectiveness of their HFS course or who have the needs to develop faculty team and course structure.
Level: Intermediate

10Z Posters: Postgraduate Education 2
Location: South Hall, PCC

10Z/1
Complications During Cataract Surgery Learning Curve Performed by Ophthalmology Residents

Sakchai Vongkittirux (Thammasat University Hospital, Ophthalmology, Khlong Luang, Pathumthani 12120, Thailand)

Background: Phacoemulsification is one of the most commonly performed cataract surgical procedures of ophthalmologists which needs well-trained surgical skills and aims to have zero complications as much as possible eg. ruptured posterior capsule. In-training ophthalmology residents started cataract surgery training in the third year which was inevitably vulnerable to a lot of serious complications. However, as time goes by, it holds true that their phacoemulsification learning curves were gradually improved and finally completed.
Summary of work: The data of all consecutively attempted phacoemulsifications with intraocular lens implantations performed at the Department of Ophthalmology, Thammasat University from 2010 to 2011, total 1,262 cases, were retrospectively reviewed and reported in the annual seminar of the department. The cataract surgery complications using phacoemulsification technique of third-year ophthalmology residents and skilful faculty staffs were compared.
Summary of results: Incidence of phacoemulsification intraoperative complications performed by third-year ophthalmology residents was 5.36 % (9/168) which is higher than that of faculty 1.83 % (20/1,094). The odds that the eyes in the resident group would have an intraoperative complication were 3 times the odds that the eyes in the faculty staff group would have such complication (odd ratio 3.04, 95% confidential interval (CI) = 1.36 – 6.79). Nevertheless, residents' complications were successively decreased whereas they gained more experience.
Conclusions: Meticulous processes of cataract surgery training will help decrease the possible complications of this procedure and continuously prosper the ability of the trainees.
Take-home messages: Customizing of the teaching pattern to suit the learning objectives will help develop residents' skill during training.

10Z/2
How do surgical trainees engage in self-directed learning in the workplace?

Harsheet Sethi (Imperial College London, Surgery and Cancer, London, United Kingdom)
SF Smith (Imperial College London, National Heart and Lung Institute, London W2 1BL, United Kingdom)

Background: This exploratory study aims to generate a deeper understanding about learning strategies employed by surgical trainees, their engagement in self-directed learning and perceptions about self-assessment.
Summary of work: A qualitative study based on grounded theory using digitally recorded in-depth semi-structured interviews with nine surgical trainees (ST3-8) within the Yorkshire rotation. Theoretical sampling was used to identify putative interviewees. The interview transcripts were coded and analysed using a constant comparative approach in an attempt to reach saturation.
Summary of results: The emerging themes reached saturation. Trainees were motivated to learn for extrinsically set milestones such as exams, intrinsically to feel competent and most importantly for problem solving. Most trainees emphasised 'learning by doing', although acquisition of theoretical knowledge was considered important. Trainees planned their route towards a consultant position in collaboration with their mentor and deanery. They found work-based assessments cumbersome and rating scales of little value, preferring timely face-to-face feedback from trainers trained to provide constructive feedback. Most people are reflective learners but prefer private reflection to formal reflective writing; they equated self-assessment to reflection-on-action, using peer performance as a yard stick to measure their own ability.
Conclusions: Central themes emerging from this pilot study were learning by doing, self and peer assessment and feedback. These will be explored further with a larger sample, via the medium of a questionnaire. This may modify our approach to and suggest improvements for the current assessment system.
Take-home messages: Trainees use critical reflection for self and peer assessment and crave graded supervision with constructive feedback from appropriately trained trainers.

10Z/3
Design and implementation of performance improvement programs for orthopedic trauma surgeons

Michael Cunningham (AO Foundation, AO Education Institute, Stettbachstrasse 6, Zurich 8600, Switzerland)
Claude Martin Jr (AOTrauma, Education, Zurich, Switzerland) (Presenter: Urs Rüetschi - AO Foundation, Zurich, Switzerland)

Background: The design and implementation of performance improvement programs (PIPs) has not been fully explored with surgeons who manage fractures and related musculoskeletal injuries. Clinical experts identified two areas in imaging where performance could be further optimized to improve patient care: intraoperative views of hip fractures and appropriate use of MRI. This research asked if effective PIPs can be designed for surgeons in the area of orthopedic trauma.
Summary of work: A 3-step process was defined and implemented for two PIPs: 1) design, administration,

and analysis of a needs analysis (online set of questions and simulated cases); 2) design and delivery of a focused educational intervention; and 3) analysis of a set of post-intervention questions.

Summary of results: Needs analyses were completed by 98 surgeons and residents globally for intraoperative imaging and by 361 for MRI. Educational needs were confirmed for both topics, and differences based on level of experience and country of practice were detected. Targeted educational interventions were delivered to address these specific gaps. Post-intervention survey data from the MRI webinar showed that many surgeons intended to make improvements in their clinical practice as a result of participation.

Conclusions: The needs analysis process successfully identified educational needs and performance gaps on several specific topics. By following a backward planning process, our educational interventions were appropriately developed to address these specific needs and gaps.

Take-home messages: Combining online needs analyses with targeted educational interventions delivered using appropriate methods is an effective method of conducting PIPs with surgeons.

10Z/4
Defining a learning curve for open appendicectomy

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Satish Babu (William Harvey Hospital, General Surgery, Ashford, United Kingdom)
Uthishtran Sreedaran (Perth Royal Infirmary, Acute Medical Unit, Taymount Terrace, Perth PH1 1NX, United Kingdom)
Pradeep Basnyat (William Harvey Hospital, General Surgery, Ashford, United Kingdom)

Background: A learning curve defines an improvement in performance over time. Surgical trainees often lack defined end points with regards to procedural competence. Our aim was to examine a junior surgical trainee's open appendicectomy learning curve and hopefully guide curriculum developers.

Summary of work: Case notes and theatre records of open appendicectomies conducted by a single trainee from December 2011-April 2012 were reviewed.

Summary of results: A total of 26 open appendicectomies were performed. Operative times ranged from 20 – 91 minutes (mean 58). The length of stay ranged from 0 to 7 post-operative days (mean 1.5). Of the 26 appendices removed, 4 were histologically normal, 3 were reported as enterobius vermicularis and 19 as acute appendicitis. 2 major morbidities occurred at the early stages of the learning curve. One patient required reoperation to drain an infected collection. There were no readmissions to the same hospital and no mortalities.

Conclusions: No significant reduction in operative time was observed. This may suggest that this trainee requires more than 26 cases to overcome the learning

curve. Alternatively, the results may reflect the trainee receiving progressively less assistance from supervisors. Numerous factors including case mix, characteristics of the surgeon and composition of the surgical team could influence learning curves.

Take-home messages: After 26 cases, the learning curve was not clearly established for this trainee. Defining learning curves for procedures could guide developing surgeons during their training. The learning curve for open appendicectomy may require more cases prior to competence.

10Z/5
Developing an adolescent medicine curriculum: confidence verses practice of pediatric residents in Thailand

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Boonying Manaboriboon (Mahidol University, Department of Pediatrics, Faculty of Medicine Siriraj Hospital, Bangkok, Thailand)
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Jiraporn Arunakul (Mahidol University, Department of Pediatrics, Ramathibodi Hospital, Bangkok, Thailand)

Background: Confidentiality, privacy and psychosocial assessments are important aspects of adolescent health care. In order to develop a proper curriculum for adolescent medicine rotations, the authors aim to assess pediatric residents' confidence level and frequency of providing health care for adolescents.

Summary of work: This is a prospective descriptive study. Participants were a group of pediatric residents from multiple institutions throughout Thailand who agreed to complete a self-reported questionnaire. They were asked to use a scale of 1 (not confident, never) to 4 (most confident, always) to rate their level of confidence and frequency of in providing health care to adolescents. Issues assessed were chosen from health supervision guidelines pertinent to adolescent health care.

Summary of results: Forty-five residents completed the questionnaire, the majority (95.6%) were in their last year of training. Most (73.33%) had experience in providing care to adolescents. Adolescents comprised 11.91% of the patients seen.

Residents were most confident about BMI (95.56%) and blood pressure assessment (95.56%). Issues that they were least confident about were: game & internet addiction (71.11%) and mood disorders (66.67%). Issues that they most frequently practiced were: blood pressure (86.76%), plotting weight and height on growth curves (86.76%) and growth assessment (86.76%). Issues that were least frequently practiced were assessment

for: risk of pregnancy (75.56%) and cervical dysplasia (68.89%).
Conclusions: Pediatric residents were more confident and more frequently provided health care to adolescents on physical rather than psychosocial issues.
Take-home messages: In Thailand, an adolescent medicine curriculum which focuses on comprehensive health care with an emphasis on psychosocial issues is recommended.

10Z/6
Procedural skills in pediatric residency and in practice

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Andrea Hunter (McMaster University, Pediatrics, Hamilton, Canada)
Rahim Valani (McMaster University, Pediatrics, Hamilto, Canada)

Background: Procedural skills are an integral part of pediatric residency training programs in Canada. It is uncertain which skills practicing pediatricians consider important in practice versus the comfort level of residents for these procedural skills.
Summary of work: This prospective survey was undertaken at a single academic institution. Residents and general pediatricians were surveyed on how often they performed procedures listed by the Royal College of Physicians of Canada training objectives. Participants were also asked to rate their confidence level in performing each skill, along with their perception of which skills were necessary for pediatrics practice.
Summary of results: Thirty seven participants completed the survey (22 residents, 15 staff). 14 residents were in their first two years of training. All staff physicians had community practices, over 90% also had academic appointments. 100% of residents and practitioners identified neonatal and pediatric resuscitation skills as essential to practice though used this skill set less than 5 times in the last year. Competence in all other non-resuscitation procedures were rated as either useful or important, but not essential to general pediatrics. The emphasis placed on a skill was not predictably related to the frequency they were performed. Residents uniformly described less confidence in performing all procedures than attending physicians.
Conclusions: This study shows that despite limited training and exposure to a skill, residents are able to distinguish which procedural skills are important to the practice of general pediatrics.
Take-home messages: There remains a need for continued exposure to essential skills in practice, even if limited in opportunity, to continue to build confidence in implementation.

10Z/7
Published articles based on pediatric residency training research theses

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Wassana Khotchasing (Prince of Songkla University, Pediatrics, Hat Yai, Thailand)

Background: Since 1985, the Department of Pediatrics of the Faculty of Medicine/Songklanagarind Hospital, Prince of Songkla University, has been approved by the Royal College of Pediatricians of Thailand (RCPT) as one of the Thai university hospitals qualified for pediatric residency training, with 3-6 residents/year during 1985-2003 and 6-10 residents/year since 2004. According to RCPT requirements, each pediatric resident is required to complete a full thesis prior to their final Thai Pediatric Board Examination.
Summary of work: Objectives: To determine the percentage of published articles based on residents' theses in medical journals and how long after the residents finished their residency training this publishing occurred.
Method: PubMed, Scopus, Web of Science, and the Thai journal database were searched for the names of our pediatric residents. Faculty researchers who had supervised the residents during their training were asked to confirm whether the residents had published their work.
Summary of results: Of the total 130 residents' theses during the 24-year period (1985-2012), 34 (26.2%) were published as articles in a medical journal: 8 (23.5%) in a Thai medical journal, 8 (23.5%) in a regional English journal, and 18 (53.0%) in an international journal. The median timings from when the residents finished their training program to the time their articles were published were 16, 20.5 and 21 months for Thai journals, regional journals and international journals, respectively.
Conclusions: About 25% of the residents' theses during the pediatric training were published as articles in the medical journals.
Take-home messages: More published articles based on residents' theses are expected in the future.

10Z/8
The third year anesthesiology residents' knowledge regarding pediatric postoperative pain management

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Wimonrat Sriraj (Khon Kaen University, Anesthesiology, Khon Kaen, Thailand)
Suwannee Suraseranivongse (Mahidol University, Anesthesiology, Bangkok, Thailand)

Allen Finley (Dalhousie University, Anesthesiology, Halifax, Canada)

Background: An evidence of residents' knowledge is needed for improving the training program. Objective of the study is to assess the third year anesthesiology residents' knowledge about pediatric postoperative pain management.
Summary of work: The pediatric postoperative pain management was surveyed. The questionnaire has 35 questions divided to 17 multiple choice questions and 18 true or false questions to cover 2 domains; 1) use of age-appropriate pediatric pain assessment (10 questions) and 2) pediatric pain treatment (25 questions). Minimal passing level of the questionnaire rated before starting the survey was 76.2 percent. Participants were sixty-two 3rd year anesthesiology residents from 6 training centers across Thailand.
Summary of results: The response rate was 95.2 percent. Seventy-one percent of participants reported that they had learned about pediatric pain treatment. Of those, 55.9% rated their remaining knowledge at median level. The proportion of correct score was 67.7 percent (mean 23.7 + 2.9 SD) which was lower than the minimal passing level. The highest score was 29 (82.9%) and the lowest score was 16 (45.7%). For pain assessment domain; the mean proportion of correct score was 65% with highest and lowest scores at 90% and 40%. For pain treatment domain; the mean proportion of correct score was 68.8% with highest and the lowest score at 88% and 44%. There were 3 questions from the first domain and 5 questions from the second domain that less than 50 percent of participants had correct answer.
Conclusions: Pain education is provided during Anesthesiology training programs in Thailand and the third year anesthesiology residents' knowledge about pediatric postoperative pain management needs to be improved.
Take-home messages: Education for pain management in children needs to be improved.

10Z/9
eLearning among Canadian anesthesia residents: a survey of podcast use and content needs

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Derek Rosen (University of Toronto, Canada)
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Dylan Bould (University of Ottawa, Canada)

Background: Podcasts are increasingly being used in medical education. In this study we conducted a survey of Canadian anesthesia residents to better delineate the content needs, format preferences, and usage patterns among anesthesia residents.
Summary of work: Following institutional ethics approval, 10/16 Canadian anesthesia program directors, representing 443 residents, allowed their residents to be included in the survey study. 169 (38%) residents

responded to our survey. A 17-item survey tool developed by the investigators was distributed by email eliciting information on patterns of podcast use, preferred content, preferred format, and podcast adjuncts perceived to increase knowledge retention.
Summary of results: 60% (91/151) had used medical podcasts with 67% of these users spending up to 1 hour per week on podcasts. 72.3% of respondents selected 'ability to review materials whenever I want' while 66% selected '...wherever I want' as reasons they found podcasts to be valuable. No clear preference was shown for audio, video, or slidecast podcasts. Physiology (88%) and pharmacology (87%) were the most requested basic science topics while regional anesthesia (84.1%), advanced airway skills (79.5%), crisis resource management (85.9%) and mortality and morbidity in anesthesia (66.7%) were most requested for procedural, clinical and professional topics respectively. Respondents stated they would most likely view podcasts that contained procedural skills, journal article summaries and case presentations and that were between 5-15 minutes in duration.
Conclusions: The majority of respondents are using podcasts. Anesthesia residents have preferred podcast content, types, length and format that educators should be cognizant of when developing and providing podcasts.
Take-home messages: A podcast needs assessment may be useful to determine needs of the target population.

10Z/10
Comparison of Hospitalist and Traditional Models of Family Medicine Training at Montfort Hospital, Canada

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Madawa Chandratilake (University of Dundee, United Kingdom)

Background: As part of the two-year residency program, family medicine residents must complete adult inpatient care rotations. Before the early 2000s, 'traditional' family physicians did inpatient care in the morning, and devoted the remainder of the day to their private clinic practice. Since then, hospitalists are now taking care of inpatients. They do not have any other clinical duties.
Summary of work: The literature review demonstrated that the hospitalists are preferred by the residents. The following research question arose: in a community hospital such as Montfort, is the hospitalist model of family medicine training better in terms of educational exposure and resident satisfaction compared to the traditional model of family medicine training?
Summary of results: Based on the findings of this study, the hospitalist model was not found to be superior to the traditional model to teach inpatient care to family medicine residents. Both models are similar with respect to patient loads and diagnoses. The workload seems lower in the hospitalist model, thus increasing the satisfaction of the residents. The hospitalist model

seems less stressful due to the extra time available to see patients and to interact with the allied health team.
Conclusions: The exposition to both models should be incorporated in the curriculum but the objectives should differ. The hospitalist model rotation should concentrate on the in-depth development of competencies for inpatient care while the traditional model rotation should be focused on the development of efficiency.
Take-home messages: Residents' satisfaction and learning are increased by having clear objectives, presence of a staff physician and time to learn and reflect.

10Z/11 (14144)
An evaluation of a paediatric scholarship programme for general practitioners in Scotland

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Sue Bloomfield (NHS Lothian, Scottish School of Community Paediatrics, Edinburgh, United Kingdom)
Alex Potter (NHS Education for Scotland, Medicine, Glasgow, United Kingdom)
Lynsey Borland (NHS Education for Scotland, Medicine, Glasgow, United Kingdom)
Sharon Mchale (NHS Lothian, Scottish School of Community Paediatrics, Edinburgh, United Kingdom)

Background: A minority of GP Specialty Training programmes in Scotland include a paediatric attachment. In response, from 2010 we offered to cohorts of 20 GPs per year a one-year higher professional educational experience to prepare them go on to play an enhanced role in providing, leading or developing children's services in primary care or at the primary/ secondary care interface.
Summary of work: We designed and delivered a curriculum, mapped to the learning syllabus for the DCH and the early years of paediatric specialty training. Scholars were competitively selected and an annual commitment of at least 72 sessions was required spread amongst taught elements, clinical attachments, small group work and flexible sessions. Evaluation of the first two years of the scholarship focussed on the experiences of the scholars and the practical outcomes resulting from the programme. The evaluation was made up of two stages that covered both process and outcome using a return on investment framework.
Summary of results: The scholars were highly satisfied and their aspirations had largely been met. Five areas of impact were reported on taking learning into practice in the year subsequent to the programme: (1) Possessing enhanced knowledge and skills in primary care and acute settings; (2) Using this knowledge in practice with more confidence; (3) Passing on learning; (4) Undertaking specialist sessions; (5) Seeking more coherent relationships and understandings of pathways from primary to secondary care.
Conclusions: Evaluation suggests that the aim of the scholarship has been partly met. A longer term

evaluation will be required to measure any lasting impact.

10Z/12
Assessing Academic Clinical Fellows in General Practice: square pegs in round holes?

Kirsty Protherough *(University of Birmingham, United Kingdom)*

Background: Academic Clinical Fellows (ACFs) training in General Practice (GP) record competence progression in their Royal College of General Practitioners (RCGP) e-portfolio. The e-portfolio is inflexible such that only the learning log and personal development plan are usually utilised to demonstrate academic progress. This pragmatic pilot was undertaken to evaluate the utility of three assessment tools to trainees in the academic setting.
Summary of work: ACFs in two deaneries were asked to pilot the use of an academic learning needs analysis (LNA), a new academic supervisor report (ASR) and current WPBAs. The use and value of these tools was assessed using an electronic questionnaire and a focus group of ACFs.
Summary of results: 22 GP ACFs responded to the questionnaire and six participated in the focus group. Use of WBPA was 32% (n = 7), LNA was 55% (n = 12) and ASR was 82% (n = 18). GP ACFs valued discussions of academic progress and use of assessment tools appeared to facilitate constructive feedback about an ACF's academic role. ACFs disliked tools containing inapplicable elements, undertaking mandatory academic assessments prior to commencement of their academic post and uncertainty about which WPBA to use.
Conclusions: ACFs appreciate formally addressing progress, learning needs and how to maximise the use of their posts. Formative academic feedback would be best accepted if delivered using specifically designed academic tools that are integrated into the e-portfolio. When designing academic assessment tools, both research and education activities need to be considered. Academic experience is a pre-requisite for formal assessment of academic progress; commencing academic activity in ST1 would enhance demonstration of progress in later years.

10Z/13
Pilot study: A milestones-based self-directed learning (SDL) survey for Internal Medicine residents

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Background: Various SDL skills are represented in the Internal Medicine (IM) curricular milestones and residency programs are required to ensure that residents can perform these skills.
Summary of work: A cross-sectional survey of categorical IM residents was developed based on the curricular milestones and Malcolm Knowles' adult

learning theory. The study was conducted at Rush University Medical Center, Chicago, USA. Residents from all 3 years of training were invited to participate. Participation was optional and responses were anonymous. The survey was administered via Survey Monkey from 8/17/2012-9/7/2012. 44 of 101 residents participated (response rate 43.5%).

Summary of results: At all levels of training, our IM residents expressed a strong interest in having our residency program help them develop a system to pursue their clinical questions. 34% reported not having any such system. We also found that only 11% reported feeling confident in their ability to critically appraise journal articles and that residents often do not create learning goals to guide their progress.

Conclusions: The strengths of the study include the attempt to engage residents at all levels of training in this effort and the ability to compare their responses. Although the study has a number of limitations, including the small sample size and single institution, the findings parallel those of the studies done in other primary care fields. IM residents across all years of training expressed concern about their SDL skills. Our findings may reflect a true deficit in our residents' SDL skills.

Take-home messages: A curriculum to address SDL skills may be helpful in IM training programs.

10Z/14
Canaries and mineshafts: evaluating complex educational interventions and outcomes during Research Week

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Robert Hale (General Practice Education and Training Canberra, Australia)
Susannah Littleton (General Practice Education and Training Canberra, Australia)
Lex Lucas (Australian College of Rural and Remote Medicine, Brisbane, Australia)

Background: "Research Week" is a virtual conference with an interactive web-site and online workshops. It was established in 2010 to provide an opportunity for registrars, supervisors and medical educators to discuss research issues that are directly relevant to vocational training. It offers participants an opportunity to meet, regardless of distance and without the need to travel. Australian GP vocational training occurs outside the University structure and this limits access to academic expertise. Educational research can be challenging, and requires careful design to achieve generalisable outcomes. Evaluating Research Week is particularly challenging, and engaging participants in evaluation can be difficult.

Summary of work: Evaluation of Research Week involves quantitative measures (eg participation rates) with qualitative data (eg commentary and interviews). Elements of Research Week were evaluated this year with graphic cues (mineshafts) and graphic tools (canaries).

Summary of results: Participants value the accessibility and opportunity to network with like-minded colleagues. Technical and administrative support is crucial to the success of a virtual conference. Facilitators can feel very isolated when presenting using virtual classrooms for the first time. Immediate feedback and engaging evaluation activities contributes to a sense of a community of practice, and improves participant and facilitator satisfaction.

Conclusions: Innovative and engaging evaluative tools, using games, social media and graphic elements increases engagement with evaluation. Sampling evaluation during an event and sharing results with participants also increases engagement in the learning community and improves educational outcomes.

Take-home messages: Good evaluation relies on choosing the right canary and the right mineshaft.

10Z/15
The use of exit interviews in postgraduate medical education

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Background: Exit interviews are conducted to explore job-turnovers in professional organizations and to understand why staff is leaving. Information about the use of exit interviews in medical education is limited (Flint & Webster, 2011). In postgraduate training residents regularly switch workplace, due to requirements in their training program. When they are leaving a department exit interview can be used as a quality improvement instrument to explore the resident's perception of the educational climate, the facilities and the quality of patient care. How are exit interviews used in postgraduate education in Dutch teaching hospitals?

Summary of work: Interviews were conducted with 28 tertiary medical teaching hospitals (STZ). A ten item semi-structured questionnaire was used, including topics such as: the target group, the workload for residents and interviewers, and the procedure of informing medical departments and stakeholders about outcomes.

Summary of results: 4 hospitals (14%) are developing an exit interview procedure, and 16 hospitals (57%) use exit interviews. The target group consists of residents, but 5 hospitals also include house officers. The number of interviews ranges from 10 to 60 a year with a duration of between 30 and 60 minutes. Most explored themes are: learning climate, quality of training program, and points for improvement.

Conclusions: Information from exit interviews is rich and useful for improving teaching practice in the workplace. This instrument works best if confidentiality and anonymity for residents can be guaranteed, especially when the information is fed back to the medical disciplines and stakeholders.
Take-home messages: If used properly, exit interviews are valuable for improving educational quality in (postgraduate) training.

10AA Posters: Teaching and Learning about Research
Location: Terrace 2, PCC

10AA/1
Medical Research Potential: an untapped resource in Bachelor students

Annelies Ruijs (Radboud University Medical Centre, IWOO, Postbus 9101, Nijmegen 6500 HB, Netherlands)
Roland Laan (Radboud University Medical Centre, IWOO, Nijmegen, Netherlands)

Background: In 2009 the Radboud University Medical Centre in Nijmegen, the Netherlands, started with a selective honours program for students in medicine, dentistry and biomedical sciences.
Summary of work: At the end of the first bachelor year 25 out of 500 students are selected on the basis of grades, motivation for research and ability to take on an extra course load of 10 hours a week. The program starts with an (scientific) English Proficiency course in the first semester of the second year. In the second semester the students become acquainted with the research at the UMC St Radboud. They then choose their own research topic to work on in their third bachelor year, culminating in an internship of at least three months at a renowned institute abroad.
Summary of results: Two groups have graduated from the program so far. Their internships took them from Oxford to Ontario and from Barcelona to Boston. Results were published in the book Radboud Honours Programme Medical Sciences 2011, 2012. Supervisors abroad were very impressed by the results, some students even outshone their graduate students. Several students continued their research after graduating from the honours program. Also, they have co-authored scientific publications. Looking back, all students comment on their vast personal growth as well as on their research advancements.
Conclusions: The program successfully provides an opportunity for selected bachelor students to find an extra challenge in research.
Take-home messages: There is high quality research interest and potential in bachelor students that without the Honours Program would go untapped.

10AA/2
Students as Researchers: The Student experience of conducting a narrative study with their Peers

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Áine Goggins (Queen's University Belfast, Medical School, Belfast, United Kingdom)

Background: As part of a larger qualitative study (described elsewhere), medical students acted as researchers to investigate professional identity formation by conducting narrative video interviews with peers. We aimed to evaluate the experience of these student researchers, including problems encountered and insights gained.
Summary of work: An online questionnaire containing a mix of Likert scales and free text responses was distributed to student researchers and followed by a focus group. We analysed questionnaire data with descriptive statistics and carried out thematic analysis of interview transcripts.
Summary of results: Questionnaire response rate was 90%. 6 student researchers took part in the focus group. Student researchers used the student network to recruit participants. Number of interviews conducted ranged from 2 to 16. Most felt more comfortable interviewing friends but sometimes felt unfamiliarity could result in a better interview. Students felt generally confident and well-prepared for their role as researchers and felt the project benefitted both their knowledge of research and their understanding of professionalism.
Conclusions: Using medical students to conduct research interviews has extensive benefits. Students interviewing students can lead to new and different insights compared to faculty researchers. Involving medical students in research about professional identity enables them to approach qualitative research for the first time and so increases their understanding and engagement with the research process. Furthermore, it promotes thinking on aspects of professionalism.
Take-home messages: Students' experiences as researchers have positive benefits for themselves, for the research and potentially for peers.

10AA/3
Students' scientific investigation is an important part of education in a medical university

Andrey Kuimov (Novosibirsk State Medical University, Department of Internal Medicine, Novosibirsk, Russia) (Presenter: Natalya Lozhkina, Novosibirsk State Medical University, Department of Internal Medicine, Krasny Prospekt 52, Zalessky Street 6, Build 7 630047, Novosibirsk 630091, Russia)

Background: Continuous scientific education is considered as the important part of medical education in university. Scientific work develops skills and methods that can be used in the medical practice of the future doctor. So, the early involvement in scientific

investigation engages students to advance in educational level and introduces them to evidence-based medicine.

Summary of work: We have developed in cooperation with the scientific departments the structure of step-by-step scientific education in the undergraduate and postgraduate curriculum. The scientific educational curriculum consists of the following steps. The 1st step – experimental study in 2-3 courses of the high medical education. The 2nd step (4th course) – the investigation and description of different clinical cases and "difficult" patients. The 3rd step (5th course) statistical analyses of the local morbidity and mortality in the region of the most important diseases (IHD, Arterial Hypertension and so on). 6th step – the participation in scientific problems in the clinic as the member of the scientific team. 7th step (postgraduate) – the participation in the university clinical investigations including medical trials.

Summary of results: The scientific educational curriculum advances the medical educational level of the future doctor, introduces him to evidence-based medicine and develops his clinical thinking.

Conclusions: The scientific educational curriculum may be the most effective additional part of medical education in university.

Take-home messages: The modern practitioner must be a scientifically educated doctor.

10AA/4
Undergraduate involvement in Medical Research – The Glasgow Experience

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Moira Ritchie (NHS Greater Glasgow and Clyde, Gartnavel General Hospital, Radiology, Glasgow, United Kingdom)
Isobel Brown (NHS Greater Glasgow and Clyde, Information and Governance Centre, Glasgow, United Kingdom)
Jonathan Moss (NHS Greater Glasgow and Clyde, Gartnavel General Hospital, Radiology, Glasgow, United Kingdom)

Background: In the National Health Service (NHS) Caldicott Guardian approval is mandatory in research projects where patient sensitive data is being used and ethical approval from a committee is inappropriate. Examples of patient sensitive data include: patient name, date of birth or community health index number etc. These measures are put in place to ensure appropriate and safe handling of data.

Summary of work: We present our findings from a survey carried out to identify undergraduate involvement in medical research, knowledge of the Caldicott Guardian and the length of time required for approval if applied.

Summary of results: In total, this pilot study summarises the first 100 responses of medical students from the University of Glasgow. The sample was well representative of all years as, 16 first years, 14 second years, 21 third years, 21 fourth years and 28 final year students replied. Of these, 48 had participated in medical research, of which 22 collected and analysed patient sensitive data. 19 students acknowledged regulatory approval was required. 47 of the 48 students stated they would participate in medical research again. 75.5% of the survey respondents were unaware of the role of the Caldicott Guardian.

Conclusions: Caldicott Guardian involvement is an important component of medical research. However the majority of medical students are unaware of these requirements.

Take-home messages: Undergraduate involvement in medical research is becoming increasingly popular amongst medical students. However undergraduate medical education regarding the Caldicott Guardian requires review, to ensure research being carried out is appropriate and safely handled.

10AA/5
Twenty-two Years of Summer Research Experience for Charles University, Hradec Kralove Medical Students at Mayo Clinic

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Background: The School of Medicine at Charles University in Hradec Kralove, Czech Republic (UK Hradec) recognized a need for a program that allows highly motivated and academically oriented medical students to experience the rewards of scholarly research by providing a structured research experience. Thus, a partnership for this purpose was established with Mayo Clinic in 1991.

Summary of work: Eligible students are medical and dental students as well as postgraduate students attending UK Hradec. Interested students apply internally and provide their resume, area of research interest to the Program Administrator. Those selected by UK Hradec then undergo a second review, including a face-to-face interview, by the Mayo Clinic program administrator.

Summary of results: 63 medical/dental students and 17 post-graduate students participated in this program and visited Mayo Clinic. All of them worked on mentored projects on scientific topics under the supervision of tutors in different fields of medical research. This work resulted in presentations at scientific conferences and in more than twenty publications in high-impact scientific journals. Some students have returned to Mayo Clinic for additional work, some others have pursued residency programs in the United States.

Conclusions: This program is deemed an unqualified success by all participants. In addition to teaching students the essentials of effective research and academic research principles, it has been a catalyst for personal and professional growth, as well as for establishing a community of scholars and mentors across the 2 countries and institutions.

10AA/6
Research methodology end-of-course evaluation: students' attitudes and performance, with multiple choice test item analysis

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Background: Acquisition of research knowledge and skills are essential for medical postgraduates' academic or professional careers. The study aimed to explore the students' attitudes toward the 'Research Methodology' course, assess students' achievement of course learning outcomes, and to evaluate the quality of the final MCQs test items in terms of 'Difficulty Index', 'Discrimination Index' and 'Distractor Efficiency'.
Summary of work: A cross-sectional survey was conducted at Alexandria Faculty of Medicine, Egypt on 44 medical postgraduates who completed their Research Methodology course. Students' attitudes were assessed using a 29-item questionnaire. Final MCQs test and course assignments scores were reviewed. The MCQs were analyzed for difficulty and discrimination indices, and distractor efficiency.
Summary of results: Most of the participants held positive attitudes toward the Research Methodology course, and valued its importance in their academic or professional careers. A relatively high overall performance of students was achieved. The majority of test items were easy for the students, but maintained their high discriminative value. Items with two nonfunctioning distractors, though easier, were proved to be better discriminators than items with 3 and 4. No significant correlation could be found between difficulty and discrimination indices. However, the mean difficulty index significantly increased with decreasing distractor efficiency.
Conclusions: Relatively positive attitudes of medical postgraduates toward the course contributed to their overall high performance. Further refinement of the course based on students' perspectives is needed. Most of the MCQs used were satisfactory questions as they were able to differentiate good and weak students.
Take-home messages: Students' interest and positive attitudes toward research methodology course positively influenced their learning process. Teachers should pay more attention to students' feedback and provide the necessary assistance for students with negative attitudes. Items having average difficulty and high discrimination with functioning distractors should be incorporated into future tests to improve test development and properly discriminate among the students.

10AA/7
Inspiring a new generation of medical researchers

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Background: INSPIRE is coordinated by the Academy of Medical Science and aims to nurture the next generation of medical researchers
Summary of work: We aim to increase medical students' active engagement in research by supporting and motivating them towards considering research careers. We have increased collaboration and networking within the College and the wider University and between healthcare companies and scientists so as to foster a more supportive and collaborative environment for students interested in research. Linked initiatives include: (1) BIOBREAKFASTS - A networking opportunity for students to meet scientists, healthcare company representatives and College researchers. (2) Learning opportunities in research setting - Creating a bank of approx. 200 optional placements where students can gain and expand on their research experience. Examples include journal clubs, research meetings, bench top experiments, seminars and discussions. (3) e-PORTFOLIO and 'MY CV' - Support students in building their online portfolio of research experience helped by near-peer mentors who act as role models and also provide lectures and workshops. (4) Expand existing schemes - Using INSPIRE funding for student research vacationships and to support current funding schemes for student-led projects.
Summary of results: Our INSPIRE programme aims to introduce and expand on these four initiatives and closely collaborate with other medical school colleagues and students.
Conclusions: Swansea medical students will also have opportunities for intercalated and parallel studies, including a Masters in Research (MRes), to boost their formal research skills and employability.
Take-home messages: Early research exposure will enrich our students and will ensure that our future clinicians are aware of academic pathways as a career choice.

10AA/8
What is the Impact of an Intercalated Degree on Research and Academic Ambitions?

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Alexandra Phillips (King's College London, School of Medicine, London, United Kingdom)
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Helen Graham (King's College London, Division of Medical Education, London, United Kingdom)

Background: Intercalated degrees are integrated within the standard 5-year MBBS programme, therefore extending it by one year. By enabling students to acquire the skills for critical evaluation, these degrees may be useful in highlighting the importance of evidence-based medicine (EBM) during undergraduate training. This study aimed to explore the impact of an intercalated degree on medical students' subsequent involvement in research and audit activities at King's College London School of Medicine (KCLSM).
Summary of work: An online questionnaire was administered to 412 final-year medical students in February 2013.
Summary of results: Based on a response rate of 24%, 60.2% of students took an intercalated degree. Students who completed an intercalated degree undertook significantly more research and audit projects (81% vs. 51%, p<0.01) and contributed to more projects per student than those who had not intercalated (mean 2.2 vs. 1.2, p<0.01). Applications to academic postgraduate training were significantly greater in intercalated versus non-intercalated students (42% vs. 18%, p<0.012).
Conclusions: Despite intercalation being optional at KCLSM, a large proportion of students undertake these degrees. As the students in our study reported that taking an intercalated degree significantly increased participation in research and audit, it questions whether an intercalated degree should be mandatory. Our findings highlight their potential value in creating a base for future commitment to research during undergraduate training and potentially influencing postgraduate career pathways.
Take-home message: Undertaking research and practicing EBM are important skills for future doctors. These can be acquired from an early stage through an intercalated degree, which may also enhance career opportunities.

10AA/9
The Medical Student Research Programme (MSRP) in Norway - How to facilitate active student research

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Background: The Medical Student Research Programme (MSRP) was introduced in Norway in 2002 to enhance student research and decrease the average age of PhD candidates in the medical profession. 10% of medical students are given the opportunity to join the programme. These students will during their medical studies complete the necessary requirements for the PhD-programme, as well as initiate their own research.
Summary of work: The four medical faculties are given autonomy in how they organize the programme. It is financed by the Norwegian Research Council. The students usually take one full year leave of absence from their medical studies to perform full-time research. The rest of their study-period they work part-time with their projects.
Summary of results: The aim is that students publish at least one article in a peer-reviewed journal. Most progress to complete a PhD-degree soon after graduating from medical school.
Conclusions: Students joining the MSRP will actively engage in research, and enhance their own knowledge and interest in medicine. In addition they get an early start on a potential academic career. Due to the autonomy given by the authorities in the organization of the programme at the faculty level, and the economic security provided, the programme is now well established in Norway.
Take-home messages: Through the MSRP, medical students are given an early opportunity to start an academic career.

10AA/10
Teaching Faculties' perceptions about the research carried out by undergraduate Medical Students – Experience of a mentorship program in an Indian Medical School

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Background: Much research has examined students' experiences of conducting undergraduate research. Faculty members' experiences with and perceptions of undergraduate research have not been examined in as much depth. It is vitally important to examine faculty experiences because they are the individuals who supervise the students. Therefore, the purpose of our study was to examine undergraduate research from the perspective of the faculty mentors.
Summary of work: The present cross-sectional study was carried out among 105 teaching faculties in Kasturba Medical College, Mangalore, India. The data was collected using a pretested semi structured proforma. The scoring was done using a 5 point Likert scale. The data was analyzed using SPSS version 11.5. The study was approved by institutional ethics committee.
Summary of results: The majority of the faculties (58.09%) had guided the students for research projects; more than 75% of these projects were funded; more than 70% of these research works was presented by the students in national and international conferences, and 16% of these works has already been published. Faculties perceived that student were generally interested in the research and that student had learnt critical thinking skills and the research work helped the students to be better prepared for work experiences. But there were certain perceived barriers like time consuming and lack of motivation and commitment for research among the students.

Conclusions: Undergraduates who conduct research show improvements in thinking independently, thinking critically, putting ideas together, solving problems, analyzing data, analyzing literature, interpreting research findings, conducting ethical research, and giving presentations and publishing their work.

Take-home messages: Research should be incorporated into undergraduate medical education curriculum and the students should be trained in conducting ethical research.

10AA/11

Association between self-learning, socio-demographic and academic factors with the ability to write scientific articles in under-graduate dental students

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Background: The ability to write a scientific article is an important competence that dental students should manage. There is scarce evidence of assessing this competence in under-graduate students.

Summary of work: 71 students of the second year of the Dental School were selected. They were requested to write a laboratory report following a scientific publication format. The instruments used to evaluate the ability of students to write a scientific article were: a scale designed by the authors to evaluate the quality of reporting, and the Fischer et al. Predisposition Self-Directed Scale.

Summary of results: 15.5% of students wrote a scientific article which fulfilled all the evaluation criteria. 66.2% of students fulfilled the criteria for writing the introduction section, and 91.5% of students fulfilled the criteria for writing the material and method section. 9.8% of students described the results section in accordance with the objectives of the study, and only 7% of the students described correctly the conclusion section. Men (Score = 5.23) showed better ability to write a scientific article than women (Score = 4.93), p <0.03. The ability to write a scientific article was not associated with the type of high school the students came from, the high school scores obtained, the result of the test for selecting students to enter the university, and ability for students' independent learning.

Conclusions: Undergraduate dental students of the Universidad San Sebastián showed a deficient ability to write a scientific article. The results show the necessity to provide experiences aimed to prepare students to write scientific articles.

Take-home messages: Provide remedial actions.

10AA/12

How I stopped worrying - and other unspoken outcomes of medical students' research projects

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Background: The overarching aims of science education including students' individual research projects are to provide students with understanding of research process, scientific methods, in depth knowledge of research topic, and ability to find and implement new knowledge in all kinds of future practice. To deepen the understanding of benefits and learning during the degree project course, seen from the students' perspective, it is important to capture and analyze students' own experiences.

Summary of work: The Degree project in medicine at Karolinska Institutet is a one term (20 weeks; 30 ECTS credits) long course at advanced level (term 7) during which the medical students carry out an individual research project under supervision. Students' written reflections of benefits and learning during the course on fall term 2012 were analyzed by inductive qualitative content analysis. A purposeful and maximum variation sampling strategy was used to obtain breadth in data.

Summary of results: Except research specific skills, like scientific writing and statistics, the results showed enhanced self-efficacy and self-regulation, enhanced communications skills, time management and team work skills.

Conclusions: Not only research specific skills but also several other essential skills for medical practice were improved during the degree project course.

Take-home messages: Individual research projects are valuable in enhancing students' personal development.

10AA/13

Tell them why before teaching them how: Medical students' attitudes toward research knowledge and academic performance in Thailand

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Background: This study aims to explore the extent to which students' attitudes toward the content of research knowledge (RK) affect their academic performance.

Summary of work: A cross-sectional survey was distributed to 41 fourth-year medical students who completed a four-week holistic medicine module at Suratthani Hospital, Thailand. Students were asked to complete the questionnaire, which asked students about their attitudes toward the RK content that comprised the first week of the module. Students were asked to agree or disagree with the following statements: 1) content is difficult; 2) content is not interesting; 3) content is irrelevant to medical education; 4) content is irrelevant to medical practice (MP); and 5) content is unlikely to be applicable in the future. Information on sex and grade point average (GPA) was also collected. Students' academic performance in the RK section of the module was

subsequently evaluated using a knowledge test created for this study, which was comprised of seven multiple-choice questions. Bivariate correlations were run between attitudes, sex, GPA, and the test score, with a significance level of 0.1.

Summary of results: Results indicate an inverse correlation between agreement on the irrelevance of RK and MP and their academic performance (correlation=-0.284, p-value=0.072). Students' performance was also positively correlated with GPA (correlation=0.279, p-value=0.078).

Conclusions: Attitudes toward the relevance of RK and MP may be a significant predictor of students' performance in the research subject.

Take-home messages: To improve students' performance in research learning, it may be useful to focus on its use in MP, alongside other efforts to enhance teaching quality.

10AA/14
Improving Swedish medical students' abilities to find, understand, and apply evidence based research in clinical practice

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Background: This study explores the possibility of actively improving students' ability to apply an evidence based medicine (EBM) approach during a nine week pediatric course.

Summary of work: At the start of the course they answered an anonymous self evaluation of EBM approach (10-point-scale). During the course one lecture in searching for EBM literature was given. Each student met one referral patient and one inpatient during the course and applied current EBM literature to the cases. The literature choice was discussed with the teacher. At the end of the course the same questionnaire was re-answered.

Summary of results: 91% (40/44) paired questionnaires were received. Baseline median self evaluated score for their ability to independently search for EBM literature was 5.9 (range 1-10), critically appraise EBM literature was 5.0 (range 2-9), and apply EBM literature to clinical practice 4.4 (range 2-8). At the end of the course their respective values improved by an average of 1.5 (95%CI 0.8-2.1), 1.5 (95%CI 0.9-2.2), and 2.1 (95%CI 1.5-2.7).

Conclusions: Last year Swedish medical students believe they have a fairly good ability to use an EBM approach. However, by actively requesting students to use EBM literature in their clinical practice and giving them feedback improves their EBM approach.

Take-home messages: Last year medical students can improve their abilities to independently find, critically appraise, and apply EBM in clinical practice in nine weeks by a minimal teacher effort.

10AA/15
Peer Teaching of Evidence-Based Medicine for Undergraduate Medical Students

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Yash Sinha (Keele University, School of Medicine, North Staffordshire, United Kingdom)
Abhishek R Chitnis (Keele University, School of Medicine, North Staffordshire, United Kingdom)
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Victoria Fotheringham (Keele University, School of Medicine, North Staffordshire, United Kingdom)
Stephen Renwick (Keele University, School of Medicine, North Staffordshire, United Kingdom)

Background: It has been shown that many newly-qualified clinicians base their day-to-day practice on internalised guidelines, formed through their original reading and clinical experiences as students. The early use of evidence-based resources ensures student knowledge is based on the best evidence available at the time and promotes future use of evidence-based medicine (EBM).

Summary of work: Senior students at a UK medical school delivered workshops covering the basic principles of EBM and how evidence-based resources can be used to aid pre-clinical study in a problem based learning (PBL) curriculum. The scheme was evaluated using a pre-workshop survey and an 8-12 week post-workshop survey.

Summary of results: A total of 191 medical students attended the workshops. 90% and 59% of attendees completed the pre- and post-workshop surveys respectively. When asked if they had previously received formal training to search for evidence-based resources, 37% of attendees replied 'yes'. Pre-workshop, 29% of respondents felt 'confident' or 'very confident' searching for evidence-based resources, compared to 85% post-workshop. Pre-workshop, <1% of respondents used evidence-based guidelines as their preferred resource for studying, this rose to 31% post-workshop.

Conclusions: The results show that whilst many students were aware of evidence-based resources, they tended not to use them as their preferred resource. Despite appreciating their value, few students were confident in accessing and using such resources for pre-clinical study. The workshops were successful in promoting the use of evidence-based resources.

Take-home messages: Students value teaching on how to use evidence-based resources. Peer-assisted learning can be an effective method for teaching evidence-based medicine.

10AA/16
Reducing students' doubts about EBM

Marek Perera (Queen Mary University London, Barts and The London School of Medicine and Dentistry, Centre of Medical Education, Garrod Building, Turner Street, Whitechapel, London E1 2AD, United Kingdom) Della Freeth (Queen Mary University London, Institute of Health Sciences Education, London, United Kingdom)

Background: Evidence-based medicine (EBM) is a systematic approach to clinical problem solving, which integrates the best available evidence with clinical expertise and patient values. Locating high quality evidence requires time and expertise. Few studies have explored medical students' perceptions of EBM, especially barriers and enablers for integration with their studies. The UK's National Institute of Health and Care Excellence (NICE) developed 'NHS Evidence': a free resource underpinning EBM by providing quality-reviewed evidence. NICE also developed a Student Champions Scheme to increase awareness and use of NHS Evidence. MP and two peers led the first cohort of NHS Evidence Student Champions at our Medical School. They provided optional NHS Evidence teaching sessions for 2nd year students.
Summary of work: A focus group study with second year medical students explored perceptions of EBM and NHS Evidence Student Champions' teaching sessions. Transcripts from focus groups held shortly after teaching sessions and approximately one month later were analysed using Framework Analysis. The study is ongoing until May 2013.
Summary of results: Medical students lacked conceptual awareness of EBM, but recognised its importance. Students cited lack of skills, time, awareness of suitable resources and access to these as barriers to practising EBM. Students perceived the NHS-Evidence sessions as useful.
Conclusions: Students had limited experience with EBM and doubted their EBM expertise. They welcomed the NHS Evidence sessions, which reduced doubts and provided practical skills. Student-led education for EBM is acceptable and well-received. Further research into NHS-Evidence and peer-led EBM teaching is needed.
Take-home messages: Medical students doubt their EBM expertise. NHS-Evidence sessions can raise awareness and skills for EBM.

10BB Posters: Professionalism

Location: South Hall, PCC

10BB/1

Palliative care, a tool to nurture medical professionalism in medical school

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Background: Desirable doctors are not only competent in medical science knowledge and skill but also have medical professionalism. This study explores one of the settings of bed-side training, Palliative Care, regarding the impact on issues essential to medical professionalism.
Summary of work: Prince of Songkla University Hospital is a medical school hospital and a tertiary-level medical institute. As a result, there are cases with conditions requiring palliative care according to WHO definition. The final-year medical students were assigned to study in detail palliative care patients, the activities of which included preliminary interview with the patients, presentation to small group, bedside round guided by palliative care physician and small-group reflection. Immediately after the session finished, every medical student was required to write a short reflection essay about the experience. To analyze these essays, keywords that reflect values and contents of the principle of medical professionalism were identified and then matched.
Summary of results: The spectra of issues related to medical professionalism namely patients' autonomy, primacy welfare of the patients, holistic care, compassionate communication and medical competence of symptom control was clearly demonstrated in the essay.
Conclusions: The special circumstances of palliative care patients could lead to discussion and reflection of these issues.
Take-home messages: The privilege of being with patients and family to the end is the best experience for everyone to learn and grow.

10BB/2

Teaching professionalism to first year medical students

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Luis Roman (Universidad San Sebastian, Medicina, Santiago, Chile)
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Background: Medical School in Chile starts just after high school, and lasts seven years with first three dedicated to basic sciences with almost no clinical experience. Universidad San Sebastian implemented an experience to approach medical professionalism (MP) as early as first term.
Summary of work: Session one was dedicated to study the 3 fundamental principles of MP and the 10 commitments of professional responsibilities. In session two students were given a case about an obstetrician who performed a C-section with no incidents. On the following day the patient's mother informed the hospital manager that she had perceived alcohol on the breath of the doctor.
Summary of results: 90% of students forgave the physician based on previous good behavior and good outcome. After a thorough discussion most students recognized having been led by emotions rather than objective principles and commitments. The following year the case was discussed again, but after 5 sessions of theoretical discussion. This time 50% of students wrote that the doctor deserved a verbal or written admonition and 20% a suspension or withdrawal of license.
Conclusions: Students were prone to forgive misconducts on MP when faced with evaluating situations before a thorough study of principles and commitments. Previous study and reexamination of principles contributed to a better evaluation. Students who had reflected longer on MP issues were more apt to observe principles and responsibilities.
Take-home messages: Medical professionalism can be successfully introduced early in medical schools, stimulating the reasoning leading to a behavior according to principles and commitments of MP.

10BB/3

Professionalism evaluation in probation period as an eligible criterion for medical licensing examination in China

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Yongchang Lang (Office for Medical Licensing Examination, Sichuan Province, People's Republic of China)
Yuan Zhao (National Medical Examination Center, Beijing, People's Republic of China)

Background: Qualification Certificate for 1-Year Probation Period is required to apply for the medical licensing examination in China. The certificate was criticised as formalism because of its simple statement of "Qualified or Not". As professionalism has been identified as an important area for evaluation, we modified the certificate to an observation-based

evaluation form to measure the professional behaviors of the applicants.

Summary of work: Medical education requirements, eligible criteria of licensing examinations and PubMed were searched to identify potential items reflective of professionalism. Experts' consultation was used to screen and reconstruct the items. The form was tested on our graduates and residents in our teaching hospital and perception survey were conducted.

Summary of results: From 42 items identified by literature analysis, 18 positive and 7 negative (strictly prohibited) items were converted into the evaluation form. Test results indicate content and construct validity. Exploratory factor analysis yielded 4 factors: doctor-patient-relationship skills, interprofessional-relationship skills, doctor-social-relationship skills and self-management skills. The perception survey indicated the evaluation is a little bit complex but necessary and useful to evaluate the applicants and can enhance self-discipline of the evaluators as well.

Conclusions: This study suggests that professionalism evaluation in probation period might be a good supplement for measuring professionalism in medical licensing examination. The results of the evaluation can be used as one of the eligibilities for the exam and can be saved as portfolios for the future register, professionalism measurement and recertification.

10BB/4
How do future doctors define professionalism in the Arab World?

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Background: Professionalism is a core competency in medicine. Numerous studies investigate how this competency is taught and learnt. Few studies, however, report on the students' definition of professionalism especially in the Arab world.

Summary of work: Eighty-five final-year medical students in Kuwait were asked to list qualities defining professionalism. The responses were analyzed using Miles and Huberman method. The responses were categorized into three themes according to the CanMEDs roles defining professionalism, namely, demonstrating commitment through ethical practice; participation in profession-led regulation; and demonstrating commitment to physician health and sustainable practice.

Summary of results: A total of 265 responses were generated and 93.2% of them were categorized under the CanMEDs theme describing professionalism as commitment through ethical practice. The three most commonly listed attributes were punctuality, respect, and well-attired. Only two attributes namely obligation to rules and team work were listed under the themes

describing professionalism as participation in profession-led regulation and commitment to physician health and sustainable practice.

Conclusions: Majority of the students defined professionalism in the context of ethics, reflecting their immaturity in medical practice and possible deficiencies in the curriculum. The most common listed attributes are different from other reported studies and might reflect differences in curricula, penalty system, and culture.

Take-home messages: Medical curricula in the Arab World should be designed to address a holistic and cultural definition of professionalism.

10BB/5
Traits of professionalism in students challenged with dilemmatic situations in video recorded simulations: a qualitative study

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Background: As one of the activities in our framework for the development of professionalism along the six years of curriculum (Consorti et al Adv. Med. Educ. Pract. 2012; 2012(3): 55 - 60), five short videos about typical dilemmatic situations in medical practice (Ho et al Med Educ. 2012 Mar;46(3):245-56) are used, to challenge students of clinical years and explore their believes about professional behavior and image.

Summary of work: Twelve students were interviewed after looking at the videos and the transcripts analysed for thematic analysis. Themes related to professionalism were extracted and cross-referenced with the seven types of professionalism proposed by Hafferty (Acad Med. 2010; 85(2):288-301).

Summary of results: A strong overlap with "nostalgic" and "unreflective" professionalism types was observed, with key aspects like altruism, interpersonal competence, personal morality, professional dominance and technical competence. The aspect of professional autonomy never emerged, while the issue of teamwork – not explicitly present in Hafferty's proposal – was often mentioned. Despite the Faculty's efforts addressed to the development of a social view on profession, the themes of social justice and social contract never explicitly emerged, but rather patient's advocacy and empowerment, like instances of a personal relationship of care with the patient.

Conclusions: Overall, an idealistic image of profession emerged, even if more updated traits like teamwork and patient empowerment were present.

Take-home messages: Qualitative probing of the outcome of an educational process may give useful information, also to address a more objective assessment.

10BB/6

Identifying the attributes of professionalism in clinical students: a study at Chulalongkorn medical school, Thailand

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Background: There has been growing interest in how to assess professionalism and how professionalism is perceived differently from one culture to another. We, therefore, conduct this research to identify the attributes of professionalism in Thai clinical students.
Summary of work: The study consists of two stages. Using grounded approach and triangulation, we interviewed Year 4-5 students, clinical teachers and nurses in the first stage to identify good and bad behaviours of clinical students based on their daily activities. The interviews continued until the data was saturated. The emerging issues were then arranged into the questionnaire. Year 5 students were asked to rate the importance of each issue from 1 (not important at all) to 5 (absolutely important).
Summary of results: In the first stage, 122 issues arose from interviewing 8 students, 14 teachers and 5 nurses. The importance of these items, at the end of the second stage, ranged from 2.82 to 4.61. The three most important items were: (1) being late or absent from on-call duty; (2) posting a patient's photo on social media; and (3) giving incorrect information to patients. The items with lowest scores were: (1) sleeping in classroom; (2) taking photos of medical records; and (3) eating while walking. The ten most important issues were raised in the first round by teachers (5), teachers and students (2), nurses (2) and students (1).
Conclusions: It is interesting to see how much clinical students valued each issue in professionalism. We hope that our research will contribute to the literature in professionalism.

10BB/7

Canadian Professionalism programs: structure and remediation

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Background: As professionals, physicians are committed to the health and wellbeing of individuals and society through ethical practice, profession-led regulation, and high personal standards of behaviour. The objective was to compare how professionalism is addressed among different Canadian medical schools, to explore resources used, and to investigate innovative methods used for remediation.
Summary of work: A literature review was used to explore background theory. An electronic questionnaire was circulated to directors of professionalism programs across Canada. An in-depth telephone interview was offered to further explore themes.
Summary of results: In both pre-clerkship and clerkship, the foundation of teaching remains in the form of lectures and small group session. However portfolios are used by 34.5% and 30% respectively. 63% of programs have a professionalism website and some use podcasts. A "White Coat" ceremony is conducted at 73% of sites. 45% of sites have formal staff training in professionalism. For evaluation, supervisor evaluation is always used, but OSCE, portfolio and concern notes are novel methods utilized. Faculty report fear of reprisal and time requirement as major barrier to reporting and addressing lapses. Remediation can consist of remediation essays, reflection exercises, or professionalism modules.
Conclusions: Professionalism is taught and evaluated in varying degrees. Novel methods can be utilized especially in clerkship where there is a steady decrease of formal curriculum content. Innovative remediation programs are developing at several centres. Faculty development and support, including a formalized professionalism office are suggested as venues to develop programs.
Take-home messages: The results of this survey can guide curricula for professionalism content and development of a remediation algorithm.

10BB/8

Assessing professionalism as the determining factor in residents of Shiraz University of Medical Sciences (S.U.M.S)

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(Presenter: **Saied Amiri Lorestan**, University Of Medical Sciences, Student Research Committee, Khoram Abad 7178716175, Iran)

Background: Education for professionalism is an international challenge. Professionalism is a core element which should be considered beyond knowledge and skills. Our aim is to assess the importance of professionalism in residents during their performance in different wards in SUMS.
Summary of work: A self-instructive questionnaire assessing the importance of professionalism by residents of SUMS was completed. They were evaluated based on checking different components of professionalism such as the sensitivity to sociocultural differences, empathetic behaviors, and congruency, professional skills in relationship with patients and colleagues and intimate examination. Data were analyzed by SPSS.

Summary of results: A total of 200 students participated in this study; 40% and colleagues of students marked sociocultural differences as the important factor; 65% indicated empathy as the most necessary one; 68% believed congruency as the best one; 58% believed in the importance of relationship with patients and colleagues; 69% indicated professionalism in intimate examination, and most of the cases indicated handwork and forgetfulness as the factors of ignorance of professionalism.

Conclusions: Improving professional attitude and behaviors requires critical reflection and good education, and it is better for the residents to participate in ethical classes in order not to ignore professionalism and the managers should assess them during their performance.

Take-home messages: Improving professional attitude and behaviors requires critical reflection and good education. Professionalism is a core element which should be considered beyond knowledge and skills.

10BB/9
Teaching professionalism to GP trainees

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Background: Professionalism is an important aspect of medical practice, impacting on clinical care, patient safety and communication skills. In order to meet the requirements of the Royal College of General Practitioners curriculum for professionalism, we sought an innovative and engaging way of exploring professionalism with our trainees.

Summary of work: A teaching pack following the principles of Enquiry Based Learning (EBL) was developed. This consisted of two clinical case scenarios which contained significant professional behaviour issues for the trainees to identify and discuss. The pack also included two workshops on exploring professional attitudes. The trainees were separated into mixed small groups of eight, consisting of ST1 and ST2 trainees. The groups were encouraged to explore the clinical cases and note the professional behaviours contained within each. Particular areas of interest were explored through facilitated discussion, with the facilitator drawing on an information pack of prepared research evidence. In addition each group had access to an iPad allowing for research of additional issues they identified.

Summary of results: Written feedback was received from each trainee at the end of the day. Feedback was positive; in particular trainees valued the format and delivery of this educational event. On reviewing curriculum statements, trainees felt that there had been comprehensive coverage of a range of areas linked to professionalism.

Conclusions: Small group work undertaken within the EBL framework was found to be successful in helping our trainees explore professionalism in an engaging and enjoyable fashion.

10BB/10
Professionalism Competencies for Junior Medical Officers: A Literature Review

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Background: Good practice can be described as encompassing a myriad of non-technical, interpersonal and professional skills. The Australian Curriculum Framework for Junior Doctors (ACFJD) describes professionalism as one of its five core areas of curriculum for junior medical officers (JMOs). A gap may exist, however, between the current professional skills outlined in the ACFJD, and core professional skills that JMOs must possess. Anecdotal reports from recent meetings of Victorian stakeholders suggest a need to reassess the training and education of JMOs in professional skills. This literature review sought to: 1) Better understand JMO competencies in relation to the 'professional' domain, 2) To consider how these may vary from the current ACFJD 'professional' competencies, and 3) To review JMO 'professional' competencies among the medical postgraduate curriculum.

Summary of work: Literature search strategy included electronic database searches, internet searches, hand searching, ancestry searching and networking. Searches revealed 36 articles; 16 encompassing Australasian specialty college curricula, 20 formed viewpoints, editorials, literature reviews and original research. Traditional review methodology was adopted alongside a qualitative matrix analysis through categorising thematic content analysis of college curricula.

Summary of results: Matrix analysis and reviews identified 117 professional skills - 47 were already outlined in the ACFJD with an additional 32 professional skills which were deemed significant. In addition, findings revealed a poor concordance throughout the college curricula with less than 50% generalizability for 20 competencies, and 75% generalisability for 13 competencies only.

Conclusions: Generally, there was poor consensus as to what professionalism constitutes. Further research is required to further explore professional skills for JMOs.

10BB/11

Teaching Professionalism to Interns: Evaluating the Impact of a Preparation-for-Practice Workshop

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Andrew B Connolly (Middlemore Hospital, Department of Surgery, Auckland, New Zealand)
Andrew G Hill (South Auckland Clinical School, University of Auckland, Auckland, New Zealand)

Background: The Medical Council of New Zealand asserts that intern training includes professionalism and clinical leadership. As part of the modular training curriculum for interns at Counties Manukau District Health Board (CMDHB), a preparation-for-practice (PROshop) workshop was designed to address key skills including leadership, workplace professionalism, understanding of medico-legal principles, and career development.
Summary of work: Interns were assigned to one of four, two-day PROshops during 2011. Evaluation utilised two methods. Multi-source feedback (MSF) was obtained for one of the four groups of participants. Pre- and post-surveys examined knowledge, perception and attitudes regarding various domains of professionalism.
Summary of results: In 2011, there was 97% attendance. Results of MSF showed that participants scored very highly on measures of professionalism post workshop. Free text comments highlighted participants' value of the small group discussion format. Qualitative data from pre- and post- surveys showed knowledge; perception and attitudes were either unchanged or improved.
Conclusions: This is the first professional skills workshops described for interns in Australasia. Strengths of the workshop were high attendance due to protected teaching time and the small group discussion format. Despite being resource-intensive, MSF has the potential to be a valuable method of assessing professionalism. Other hospitals should consider adopting a similar modular approach to delivering their education curriculum for interns and special emphasis should be placed on informing their interns about CPD requirements for the transition to PGY2 and beyond.
Take-home messages: 1) Protected teaching time and small group discussion formats are highly valued by participating interns. 2) MSF can be a valuable tool in assessing professionalism.

10BB/12

Why do doctors go to support people suffering from the 2011 Great East Japan Earthquake and tsunami? : A qualitative case study to explore doctors' altruism in medical professionalism

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Background: Professionalism in medical education, especially teaching altruism in doctors, has recently become a topic of interest. In order to explore the behaviours of highly altruistic doctors who can be role models when teaching it, this report describes the motives of doctors supporting people suffered from the Great East Japan Earthquake of March 2011. As a case study, we clarify elements of doctors' altruistic behaviours with their narratives.
Summary of work: Using qualitative methodology, we conducted semi-structured interviews for fifteen doctors who went to areas affected by the Great East Japan Earthquake for medical support, principally regarding their motives. Interview data were tape-recorded and transcribed verbatim, followed by analysing it using thematic analysis, one of the qualitative research methods.
Summary of results: The six following concepts with narratives were extracted as motives: 'prosociality', 'trial of clinical expertise', 'desire for real experience', 'sense of belonging', 'noblesse oblige' and 'feeling of guilt'.
Conclusions: The result revealed that their motives were related to their desires and dilemmas as humans or professionals rather than simply to the concept of 'altruism'. Further, they did not independently exist, as multiple elements correlated with each doctor.
Take-home messages: Doctors' behaviours which apparently looked altruistic turned out to be not so simplistic. When teaching medical professionalism, especially altruism, we have to consider their motives including their desires and dilemmas.

10BB/13
Professionalism of Dental Hygienists in Japan

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Background: With the aging of the population, an increase of chronic disorders and other social changes, dental hygienists (DHs) in hospitals have to provide oral health care as inter-professional with dental and medical staffs for patients who face to general and oral complex problems. The aim of this study is to improve the college program education and the professional education by clarifying the context and the developing process of professionalism in DHs.

Summary of work: The questionnaire survey about professionalism was performed to DHs (n=708) who work in the 27 university hospitals of the dentistry in Japan. The linguistic information (n=603) which obtained from the answers was analyzed quantitatively. Moreover, the information replied from the 42 persons who answered many descriptions was analyzed qualitatively by using SCAT (steps for coding and theorization).

Summary of results: The context of professionalism of the DHs divided into 3 categories, "scientific", "humanity" and "sociality". In their 20s, the description about "scientific" was shown frequently. The descriptions about "humanity" and "sociality" increased in their 30s and 40s. The gap between ideal and reality, needs from society, self-growth and contribution for patients were the important factors for continuous development of professionalism.

Conclusions: This is the first result about the professionalism of the DHs working at hospital in Japan. This construct may be able to be adapted not only for working DHs in Japanese hospital but also for global DHs.

Take-home messages: These results were useful to improve the education program of professionalism for DHs.

10BB/14

Implementation of a new 30 ECTS professional track in the medical master curriculum

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Background: In 2011 the Faculty of Health at Aarhus University started a major curriculum reform within the Master's degree program in medicine. A crucial part of this reform is the implementation of a new 30 ECTS module: "The professional track". The professional track includes courses directly related to the seven roles of the practicing physician: Course 1. Medical expert and health advocate; Course 2. Communicator, collaborator and manager; Course 3. Scholar; Course 4. Professional. The track is concluded by a portfolio exam each semester – one portfolio per course.

Summary of work: The implementation runs from August 2011 to June 2014. Our aim is to give the medical students early experiences with professional challenges. Therefore we expose the students to a range of professional courses – and not just the highly rated clinical training.

Summary of results: The first standard evaluation showed that 70 % of the students said they benefitted very much from the courses. It also shows that the students rated clinical and communication skills training much higher than courses related to the scholar and the professional roles. However, portfolios indicate that the students obtain the learning goals of the courses.

Conclusions: The next step is the preparation of a research project for the purpose of investigating how students think about professionalism in medicine and how and when students develop professional identity.

Take-home messages: The professional track formalizes a range of important components in the medical curriculum. Even though some courses in the professional track are not the most popular among the students, portfolios indicate that they obtain learning goals.

10CC Posters: Basic Science
Location: South Hall, PCC

10CC/1
Medical Students' Cell Drawings as snapshots of cellular anatomy understanding

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Background: Undergraduate medical curricula normally include cell biology courses. However, research into student misconceptions on cell structure is lacking. We considered asking students to draw cells to gain insights into students' misconceptions about cellular anatomy.
Summary of work: A surprise drawing assignment was applied to the first practical microscopy class to 120 undergraduate medical students. Students were asked to make two drawings: the scheme of an animal eukaryotic cell and their vision of an epithelial human scrub slide under the microscope. Then, they prepared a scrub of their own buccal cells and observed the slides under the microscope. The drawings were analyzed and 4 categories were created: number and organization of the cells; presence of entities with sizes bellow the optical microscope detection limit; cell nucleus position and odd representations. Each drawing was individually scored according to these categories by 4 researchers and reached consensus.
Summary of results: Drawings revealed one of the following misconceptions in every students: scrubs have tissue-like structure (20,8%); wrong scale notions, revealed by representations of the cell membrane (66,7%), organelles and cellular structures (19,2%); positioning the nucleus bordering the cell membrane (26,1%); making odd representations (8,3%), pointy shape (8,3%), blood cells (2,5%), enzymes (1,7%) or extreme dimension disparities (1,7%).
Conclusions: Students held various misconceptions about cell structure.
Take-home messages: Drawing can be a powerful tool for the identification of medical student misconceptions.

10CC/2
The improvement of senior medical students' teaching abilities in the anatomy orientation after taking lessons of teaching methods

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Background: The anatomy orientation, especially osteology, for the first grade medical students of medical school in Korea is usually taught by second grade medical students who had learned it the previous year. But as a rule the quality of lectures by senior medical students is suspected to be boring, abstruse and is out of the concern in the medical education field.
Summary of work: Six second grade medical students preparing lectures of anatomy orientation for the first grade medial students at Kangwon medical school in 2013 year were interviewed as a focus group and were asked to answer the self questions about their teaching abilities. A four-hour training of teaching methods for them was done by a family physician who worked in medical education and six anatomy orientation lectures: Upper Extremity, Lower Extremity, Chest, Abdomen, Head & Neck, Vertebra, were opened to fifty first grade medical students. First grade medical students evaluated the new anatomy orientation by questionnaires the same as those used for professor's lecture evaluation at Kangwon medical school.
Summary of results: Six second grade medical students thought their experience of anatomy orientation lectures which they had received from their senior at the time when they were a freshman as a nightmare, because of the impromptu amusement of their senior medical students' lectures. After taking lessons of teaching methods, six medical students thought that they gained self confidence and they could teach anatomy orientation better than their senior.
Conclusions: The education of teaching methods for senior medical students can improve the quality of medical students' anatomy orientation for freshman.
Take-home messages: Anatomy orientation taught by senior medical students is a part of medical education field and it is important to prepare them to teach well.

10CC/3
The Combined Teaching of an Airway Management Simulation with Head and Neck Anatomy Improved Student Performance on Anatomy Exams

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Background: Ross University School of Medicine previously submitted research showing that the coupling of a heart sounds simulation with physiology lectures improved student performance on exams. We examined whether there would be a similar effect in coupling airway management simulation with the teaching of head and neck anatomy.

Summary of work: Students were taught basic airway management and head and neck anatomy using the Laerdal task trainer. Sessions were co-facilitated by a clinician and an anatomist. Students were evaluated using MCQs and their performance was compared with 2010 controls that had not had simulation.

Summary of results: Data from 2010 and 2012 was evaluated. Students obtained an average score of 70% (n=975) and 85% (n=1659) respectively on the anatomy MCQs. The average of the upper 27% increased from 84% to 88% while the lower 27% went from 48% to 80%.

Conclusions: The results show an improvement in performance on the head and neck anatomy questions in students who did the simulation with the greatest increase in the lower 27% of the class. As in physiology, students in the lower 27% of the class benefited most from reinforcing anatomy with a simulation.

Take-home messages: The use of simulation to reinforce lecture material may be more beneficial to students with lower academic performance. Further study is needed to determine the reasons for this.

10CC/4
The state of students' knowledge about human anatomy within two different medical curricula

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Background: The importance of knowledge about anatomy for medical practice is generally accepted. Since 1999, a traditional and a problem based learning reformed curriculum have been conducted at the Charité Medical University of Berlin. Within these curricula anatomy is taught in fundamentally different ways: There is no systematic teaching of anatomy in the reformed course. It is uncertain, whether students acquire the same level of anatomy knowledge in both curricula. However, this information is crucial for the integration of the subject in a new competence-based curriculum, which is currently implemented at Charité.

Summary of work: A questionnaire was used to assess how students rate their own knowledge of anatomy. Performance in anatomical questions of the Progress-Test Medicine (PTM) provided objective data. From both curricula students in their fifth year were compared in order to reveal potential differences.

Summary of results: Students from the problem based learning curriculum considered their knowledge of human anatomy to be poorer than students from the traditional curriculum did. This result was confirmed by the students' scores in anatomical questions of the PTM.

Conclusions: Our data indicate a difference in acquisition of anatomy knowledge depending on the type of medical curriculum. This difference is also perceived by the students themselves. The data do not provide information about the application of anatomy knowledge in clinical settings.

Take-home messages: Integration of anatomical education in a medical curriculum has to be considered carefully during planning. Analysis of students' performance in a subject in different curricula is important for planning new curricula.

10CC/5
A questionnaire based study of the available resources to teach human anatomy among first year medical students

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Background: Anatomy teaching is generally an essential of medicine and this teaching has been prevalent from the 17th century. Most of our knowledge of Human Anatomy comes from dissection of cadavers. The 21st century is seeing the use of latest technology to teach Human Anatomy to students. With this in mind we aim to look at all the teaching resources in anatomy among first year medical students through a questionnaire.

Summary of work: At our university we use a variety of resources to teach Human Anatomy viz. Plenaries, Medical museum sessions where models and plastinated cadavers are used and video demonstrations. We will prepare a validated questionnaire and distribute this among first year medical students. We aim to look at which of the resources is popular or unpopular among students and the reasons for being so.

Summary of results: Currently the study is in progress. All data will be analysed at the completion of the study. Statistical analysis will be carried out as required.

Conclusions: Conclusions will be drawn with respect to the results obtained from the study.

Take-home messages: Anatomy is a vital component of medical teaching and it is important we identify the right resources that are being used to teach this subject.

10CC/6
How to Teach Relevant Clinical Embryology

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Background: Clinical embryology is important in the medical curriculum. Knowledge of embryology is essential to understand normal and abnormal human development as well as the treatment of malformations. Students often struggle to grasp the concepts of embryology and many do not enjoy the subject. We sought to establish the effectiveness of a single lecture entitled 'the clinical embryology of the limbs'.
Summary of work: 178 volunteers in 1st year at the University of Glasgow were given a questionnaire to fill out before a lecture on clinical embryology of the limbs. The questionnaire tested the students' current knowledge. At the end of the lecture the students were given an identical questionnaire to see if their knowledge had improved. Students were asked to rate the usefulness of the lecture and whether they would like more clinical embryology teaching.
Summary of results: There was a mean increase in test scores of 22.5%; 95% Confidence Interval (19.66%, 25.19%; P< 0.001). 88.7% of students reported that the lecture was useful and when asked 'would you like more clinical embryology teaching in the curriculum' over 50 % of students said 'yes'.
Conclusions: Major birth defects remain a leading cause of infant mortality accounting for approximately 21% of infant deaths. Our report indicated that students respond well to embryology taught with an emphasis on clinical relevance. Lecture based teaching in clinical embryology has significantly improved knowledge in 1st year medical students and was met with positive reports.
Take-home messages: More educational research needs to be undertaken early in the medical curriculum on embryology teaching and its effectiveness.

10CC/7
The Role of Anatomy Demonstrating: a medical student perspective

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Darrell Evans (Brighton and Sussex Medical School, Brighton, United Kingdom)

Background: Anatomy-teaching has changed rapidly over recent years with the development of multimedia tools and computer-based teaching. Cadaveric dissection, one of the oldest methods, is still used by many medical schools and is often delivered by anatomy demonstrators who are often junior clinicians interested in a surgical career. The aim of this study was to gauge medical students' experiences of anatomy- teaching and their opinions about the role of the anatomy demonstrator.
Summary of work: A nine-question survey was constructed and sent to medical students in the second and final years of training, in two medical schools.
Summary of results: 215 second year medical students and 70 final year medical students responded. 91% found teaching by anatomy demonstrators to be useful. 71% of respondents stated that dissection was their preferred method of anatomy teaching, with 22% preferring prosection. 59% felt that anatomy-teaching as part of their basic sciences was sufficient. 30% of respondents were interested in becoming an anatomy demonstrator, but only 7% were willing to accept a significant pay cut to do so. 23% of respondents wanted to become either a surgeon or radiologist.
Conclusions: This study found that the majority of medical students felt the teaching delivered by anatomy demonstrators to be useful, with the preferred method of teaching being dissection. Cadaveric teaching still has a vital role in medical education and is favoured by the majority of students.
Take-home messages: Medical students find teaching by anatomy demonstrators a vital part of medical education.

10CC/8
Do students use what they ask for? Reflections on anonymous student feedback following the introduction of a novel way of teaching surface anatomy to second year medical students

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Background: Student feedback is a valuable tool in the evaluation and maintenance of a successful medical curriculum. During a recent innovation used in 2011, full body digital X-rays of each cadaver dissected by second year medical students were used to aid student learning of surface anatomy. Subsequently, anonymous, voluntary questionnaires were used to gauge its success. Suggestions made by students during the 2011 feedback were implemented during 2012. The aim of the present study was to determine if students used changes suggested by the previous student cohort.
Summary of work: The following suggestions were implemented during 2012: the provision of labelled X-

ray images in the dissection halls, making cadaver and labelled X-rays images available online for after-hours viewing of student's own and colleague's cadaver X-rays, the incorporation of informal oral tests on surface anatomy during dissections and explanations of anatomically visible structures on X-ray images during lectures preceding dissections. After completion of the academic year, the 2012 students completed questionnaires (207/259, 80% response rate).

Summary of results: During 2012, labelled X-rays in the dissection halls were used by 49% of students while the on-line electronic versions were used by 34% to view their own cadaver X-rays and 42% to view other cadaver X-rays. The informal orals were useful to 72% of students while the incorporation of explanations on X-rays into gross anatomy lectures benefitted 65% of students.

Conclusions: Changes suggested by the 2011 students were used by the 2012 cohort.

Take-home messages: Student feedback was therefore valuable in the improvement of a new teaching innovation.

10CC/9
Implementation of clinical case modules in combination with surgical dissection tutorial and cross sectional anatomy for problem-based integrated anatomy

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Background: The implementation of the problem-based learning has been a great issue in the teaching of anatomy. We have developed a new vertically-integrated anatomy course implementing the clinical case modules in combination with relevant surgical dissection tutorial and cross sectional anatomy.

Summary of work: Fourteen clinical case modules according to the body compartments and relevant surgical dissection tutorials were developed by clinicians in corporation with anatomists. Each module was instructed as below sequence: introduction of learning outcomes, basic anatomy lecture, relevant cross sectional anatomy focusing on radiologic image, surgical dissection tutorial, self-directed lab activity, and wrap-up discussion. The course covered six weeks of the 1st year of curriculum.

Summary of results: The questionnaire survey using 5-point Likert scale revealed that the new course was significantly better than the old course in terms of giving motivation and interesting to the students, providing good understanding with the insight to the clinical application. Best part of the course was revealed the surgical dissection tutorial by surgeon.

Conclusions: It was motivating, time and efforts-saving way of instructing anatomy. Also it was more relevant to educational goal of Medical School. Further studies are required to compare the long-term efficacy in the achievement of knowledge and skills between new versus traditional learning setting.

Take-home messages: Implementing clinical case module and surgical dissection tutorial by clinician was effective method of instructing anatomy.

10CC/10
Teaching tools in Neuroanatomy

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Background: Teaching neuroanatomy to undergraduate student is a challenging task. The traditional method of teaching involves the process of didactic lectures which are followed by cadaveric dissection in a small group setting. Various methods have been employed by teachers to help students gain a better understanding of neurosciences yet, no standard teaching methods have been validated so far. Various teaching tool currently being used are models, cadavers and computers.

Summary of work: To establish the best teaching tool for neuroanatomy for undergraduate students. The teaching method included didactic lectures. The various modules used during the practical session included plastic models, drawings, brain mapping, case solving, preparation of MCQs, paper models, construction of tracts, CT scans and MRI. A ten item questionnaire was circulated during the classroom session.

Summary of results: The statistical analysis of the data indicated the following results. The majority (95%) of students agreed that the best way to learn neuroanatomy is combination of various teaching methods.

Conclusions: The "best tool" to easily understand neuroanatomy is a combination of various methods. Students also find that case solving is the best way to establish basic knowledge of neuro-anatomy in relation to clinical practices. Similar results were reported from University of Cincinnati College of Medicine, Cincinnati,

Ohio, and SR College of Dental Sciences and Research, Faridabad, India.

Take-home messages: There is no "best way" to make the learning of neuroanatomy easy. To minimize the "neurophobia" among the medical students, the teachers must try combination of various teaching tools.

10CC/11
Experience of using integrated lectures-symposiums in teaching normal function and pathology in medical school

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Background: Integrated approach to teaching basic sciences and clinical disciplines is not only the main component of reforms in medical education in Kazakhstan, but the prerequisite to effective development of competencies for the graduates of medical schools.

Summary of work: Karaganda State Medical University adopted the integrated approach to learning basic sciences in context of clinical disciplines and introduced lectures-symposiums which completely replaced the traditional lectures at the second and the third years of its 5-year medical curriculum. During these symposiums, the lecture is delivered together by two or three basic scientists and clinicians, and then students are given the opportunity to ask experts the questions. All symposiums are based on clinical case scenarios and application of medical knowledge in clinical decision-making.

Summary of results: Integrated lectures delivered together by different specialists promoted the better understanding of complex theoretical foundation of the disease, increased motivation of students to learning, and created conditions for better emotional comprehension of subject matter and less fatigue due to continuous switch of attention.

Conclusions: Survey of students revealed the higher efficiency and better satisfaction with integrated case-based lectures. The academic performance of students as measured by integrated end-of-year examination in basic sciences and clinical disciplines was also enhanced by this new form of lecture delivery.

Take-home messages: The integrated delivery of educational material in lectures-symposiums could be certainly recommended for medical schools, especially at the early phase of training.

10CC/12
The relevance of physics in an undergraduate medical curriculum: student's perspective

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Background: There are six years in the undergraduate medical curriculum in Thailand. General biology, chemistry, calculus and physics are the core disciplines in the first year of most medical schools. However, our recent survey shows that, at the end of the course, most Year 1 students could not see the relevance of learning physics in medical curriculum. We, thus, conducted research to investigate if Year 3 and Year 6 students could demonstrate the usefulness of physics for their pre-clinical study and clinical practice, respectively. Their opinions towards the physics course in the curriculum were also studied.

Summary of work: We conducted structured interviews with twenty of Year 3 students and seventeen of Year 6 students. The sessions were audio-recorded and transcribed verbatim. Data obtained were then analysed.

Summary of results: When asked to provide examples of how physics can be applied in medicine, all Year 6 interviewees could come up with at least one. Only two of Year 3 students could think of nothing. Their most common examples related to orthopaedics (e.g. close reduction, mechanism of fracture), cardiology (e.g., EKG, measuring blood pressure), radiology (e.g. computer tomography, ultrasonography) and pulmonology (e.g. ventilator setting-up). The interviewees' positive/negative attitude towards physics did not correlate with the amount of examples they could provide. Their opinions regarding when physics should be taught were divided.

Conclusions: Knowledge in physics is fundamental for learning medicine. Vertical integration and faculty development are the two crucial factors to helping students recognise the relevance of physics in medical practice.

Take-home messages: Clinical relevance!!!

10CC/13
Innovations in teaching methods of pre-clinical subjects at Jessenius School of Medicine in Martin

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Background: Using lectures, labs and seminars is still very popular at medical schools in Slovakia. Physiology and pharmacology belong to the most important pre-clinical subjects and their successful passing is a key to

"survive" in clinical stage of under-graduate medical study.

Summary of work: In order to improve the retention of knowledge among the students and better preparation for clinical stage, several innovative methods were introduced into the curriculum and their impact on students as well as teachers was observed. Simulations (both software and hardware), case-studies, problem-based learning, and interactive formative assessment were implemented as the most important tools in the curriculum. The opinions of students and teachers were evaluated by a specially designed questionnaire and their retention knowledge was compared with students from previous years before involvement of simulation.

Summary of results: The students` and teachers` feedback showed significantly increased interest in learning physiology and pharmacology and increased rate of students' theoretical preparation before respective lessons. Furthermore, slight increase in results of retention knowledge tests was observed.

Conclusions: Due to the positive feedback from students, more innovations (i.e. interactive tools) will be introduced, e.g. e-learning courses on selected topics, electronic lectures and several study materials available on specially designed portal. However, more detailed evaluation of these changes is required, in order to determine the real impact on students` retention of knowledge and their ability to use them in clinical settings.

Take-home messages: Innovations in curriculum of pre-clinical subjects are essential for improving the performance of students in clinical stage of undergraduate study.

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10DD Posters: International Medical Education

Location: South Hall, PCC

10DD/1

The Challenges That Overseas Doctors might Face When Taking up Their First Appointment in the NHS

Mustafa Jalal (Durham University, School of Medicine and Health, Durham, United Kingdom)
*(Presenter: **Schaida Schirwani**, Sheffield Teaching Hospitals NHS Foundation Trust, Royal Hallamshire Hospital, Glossop Road, Sheffield S10 2JF, United Kingdom)*

Background: Overseas doctors represent about 37.1% of the total number of UK doctors, this group of doctors include graduates from European countries and International Medical Graduates (non-UK, non-Europe graduates).
Summary of work: The main aim of this study is to explore the difficulties that overseas doctors might face when they take up their first job in the UK. The secondary aim is to find out the approaches that could help overseas doctors to overcome any potential difficulties that they may face when starting work in the NHS. Method: Literature search conducted using MEDLINE and EMBASE databases. A total of 45 papers were selected for this study including seven hand-searched papers and reports.
Summary of results: The study identified a number of challenges that are facing overseas doctors and these are: lack of information about the UK health system, visa and job finding issues, financial hardship, social isolation, difficulties in securing a structured clinical attachment, language and communication challenges, working in under-resourced areas and in non-training posts, clinical challenges, ethical challenges, challenges with the UK work culture, specialty exam challenges, IT challenges, bullying and harassment, racial discrimination, revalidation, and referral to the GMC because of performance concerns.
Conclusions: Overseas doctors experience difficulties in making a smooth transition into the UK health system.
Take-home messages: Improving understanding of these challenges and providing appropriate methods to address them are vital to help this group of doctors to progress in their career and to provide better care for patients.

10DD/2

Secret Plans and Clever Tricks. How to ensure cultural competence when delivering teaching

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Background: When delivering training in teaching methodology it is imperative to alter language and behaviour for different cultural settings. This includes real-time translation combined with the need for an opportunistic and flexible approach.
Summary of work: We describe the process of adapting a teaching course for delivery in a rural health setting in Bangladesh. Lamb is an integrated health-care project which includes a hospital, 30 satellite medical centers and a training center and provides care for two million people. Lamb has a significant educational role training many different levels of staff. We adapted the Teaching Improvement Project System which has been delivered at UCL for health care professionals who teach undergraduates. We based our adaptations on a cultural competency framework which includes - knowledge of epidemiology, awareness of how culture shapes behaviour and thinking, awareness of the social context in which ethnic groups live, awareness of one's own prejudices, ability to transfer information to aid understanding and ability to adapt to new situations flexibly and creatively.
Summary of results: We shortened the content and a local champion vetted the material to ensure it was culturally sensitive. We wore salwar kameez and spoke slowly. The course was simultaneously translated and when participants were flagging action songs were introduced. We started off with a daily devotional (Lamb is a Mission hospital) and participated in a closing ceremony.
Conclusions: The course was delivered successfully and the skills the participants gained have been effective in supporting the development of essential local healthcare providers.
Take-home messages: Paying heed to cultural competence pays off.

10DD/3

Following Erasmus's footsteps: establishing a historical first curricular exchange program in medicine at the Catholic University of Louvain

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Claire De Burbure (Université Catholique de Louvain, International Relations, UCL-Health Sciences, Brussels, Belgium)

Background: Five centuries have passed since Erasmus of Rotterdam studied at Louvain, yet UCL's Medical School has yet to sign a first Erasmus Studies Exchange Contract. Encouraged by their new Dean, third year medical students searched for suitable medical curricula that could be seamlessly integrated within UCL's cursus for starting bilateral course exchanges.
Summary of work: A Facebook discussion was set up, 26 students joined forces, using internet, analyzing over

150 universities, contacting them via mail or telephone when necessary. Where curricula appeared comparable, Excel tables of the courses' equivalence were drawn up, the universities were contacted personally to seek agreement.

Summary of results: Only three universities (2%) had comparable curricula to UCL, and only one foreign university, the second being in Flanders, accepted Erasmus exchanges.

Conclusions: Students can be the catalysts of developing Erasmus exchanges, leading to a win-win situation for faculty and students: by sharing the workload, the likelihood of finding a suitable exchange partner is largely increased while the direct support of the faculty in monitoring the process helps to assure quality education.

Take-home messages: Creating an Exchange program in medicine demands a great effort, yet it can be done in an efficient way if the faculty and students work together.

10DD/4
Removing Borders: CPD recognition through collaborative international agreements

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Craig Campbell (Royal College of Physicians and Surgeons of Canada, Office of Professional Affairs, Ottawa, Canada)

Background: Over the last decade, there has been a shift in 'how and where' physicians access or participate in continuing professional development (CPD) activities. Increasing use of web-based and other learning strategies has decreased the significance of accreditation policies and practices based on geography.

Summary of work: Based on a set of core values and principles, the Royal College of Physicians and Surgeons of Canada (Royal College) has renewed three international substantive equivalency agreements: Accreditation Council for Continuing Medical Education (ACCME); American Medical Association (AMA; European Union of Medical Specialists (UEMS).

Summary of results: In 2013, the Royal College renewed substantive equivalency agreements with: (1) ACCME – allowing participants attending live, face-to-face activities held in Canada developed by ACCME-accredited physician organizations to qualify for Maintenance of Certification (MOC) Section 1 - Accredited Group Learning credits. (2) AMA – allowing US physicians participating in live and web-based group learning activities, self-assessment programs, and simulation activities approved by Royal College National Specialty Society and Simulation Program accredited CPD providers to apply for conversion of credits to AMA PRA Category 1 Credit™. (3) UEMS – allowing European Union (EU) physicians participating in accredited live

group learning activities held in Canada to convert MOC Section 1 credits to European Continuing Medical Education Credits (ECMECs), and Canadian physicians participating in similar activities in the EU to convert ECMECs to MOC credits.

Conclusions: Through international substantive equivalency agreements, the Royal College has engaged in a process formally recognizing international CPD accreditation and credit systems, expanding the opportunity for physicians to share and learn around the world.

Take-home messages: International collaboration and the substantive equivalency recognition of global CPD accreditation and credit systems enable physicians to receive credit for their participation in a wide variety of continuing professional development activities.

10DD/5
Opening a vast panorama to reach the aim of globalization in Iranian medical students by assessing their viewpoints about "Shine" the first student English magazine

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Fakhrolsadat Mirhoseini (Tehran Medical University, Shiraz, Iran)
Maryam Ghasemi (Jahrom University of Medical Sciences, Student Research Committee, Shiraz, Iran)

Background: Learning English is an inevitable necessity since it is the key of medical education. We designed a student English magazine for the first time to satisfy the needs of medical students and also to put certain strides for globalization.

Summary of work: 161 students of JUMS which were selected by a stratified-randomized method participated in this descriptive cross-sectional study. We used a self-instructive, valid questionnaire and data were analyzed by SPSS concerning p value<0.05.

Summary of results: The results showed that 60.9% were female and 39.1% were male. Average age was 21.2. 56.3% indicated that contents of the magazine were based on their needs. 57% indicated that it was effective in their improvement of English. 49.7% believed that it represented a new method and model in learning practical English. 53% believed that it presents up-to-date and suitable contents. 89% of them indicated that Shine is the first student English magazine they have ever been familiar with.

Conclusions: Taken together, this student English magazine might provide a suitable opportunity for students to refer to international and scientific texts, websites and learn practical English. And the results of this study might be a stimulus for the managers to revise the weak points of English curriculum in medical education.

Take-home messages: Taken together, this student English magazine might provide a suitable opportunity

for students to become interested to English and international texts.

10DD/6
Perceptions and attitudes of medical students and post-graduate residents towards using English as a medium in medical education in Taiwan

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Background: Medicine education in Taiwan is conducted in Chinese and the instructors emphasized only medical terminologies in English. However, unlike medical students in Hong Kong who use English, as a second language, for the entire curriculum as the medium of instruction, only English medical terminology focus instruction in Taiwan might affect medical students' comprehension of the medical textbooks and might reduce those future medical doctors' academic performance. Whether English should be used as a medium in medical school in Taiwan raises the attention. Most literature advocating this comes from personal feelings and impressions. There are no reports of medical students' opinions and attitude towards this issue.
Summary of work: The study was conducted in the College of Medicine, Chang Kung University, Taiwan. Medical students and post-graduate residents were randomly selected to answer a survey questionnaire which investigated their perceptions and attitudes towards teaching medicine in English.
Summary of results: The results indicates the medical students showed a positive attitudes towards teaching medicine in English, with varying opinions regarding when and how it should be done.
Conclusions: It was concluded that students and residents support English as a medium in medical education in Taiwan and welcomed English provided it was approached gradually and with adequate planning. A systematic plan to achieve is proposed.
Take-home messages: English is essential to be used as a medium while teaching non-native medical students. A systematic plan should be provided in training courses.

10DD/7
Identifying and overcoming language barriers faced by foreign medical students

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Background: An increasing number of students are considering studying abroad as an alternative to study medicine at their home countries but they encounter considerable challenges in non-Anglo-native-language settings due to the local culture and language. Therefore it affects their ability to communicate with patients directly, making translation-dependent, and can diminish self-confidence in relation to patient.
Summary of work: Due to large number of low Polish proficiency Anglo-division students, we devised an on-line survey to investigate foreign students' needs and guide strategy development to improve medical knowledge delivery, with an emphasis on language barriers.
Summary of results: 70 Anglo-division program medical students in their penultimate year were asked to fill the on-line survey, 48 of them responded. 75% (36) were not Polish-proficient. Consistencies were found in responses from both Polish-proficient and non-proficient students. Both groups found an advantage to being Polish-proficient in terms of appropriate communication skills, which influenced on improving their clinical and practical knowledge. They reported compromised student-patient interaction and emphasized the need to minimize the language gap between students and patients. Participants suggested more intensive Polish-language courses in their early academic years and/or including at least one Polish-proficient student in clinical subgroups during rotations.
Conclusions: Physicians teaching Anglo-division medical students should be conscientious of language and cultural limitations and try to introduce more individualized teaching methods to minimize differences between Polish-proficient and non-proficient students in terms of patient communications skills.
Take-home messages: Anglo-division-non-native medical students are aware of their limitations during academic clinical years and are interested in methods to alleviate language barriers.

10FF ePosters: Assessment: Written and Feedback
Location: North Hall, PCC

10FF/1
Self-monitoring as a strategy to improve performance: a diagnosis based on tests

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Background: Self-monitoring mistakes, indicating an inaccurate transition between an automatic mode of practice and reflexive reasoning, are a valuable stimulus to induce self-directed learning among medical students. Nevertheless, little is known about this ability at the intermediate phases of the course. This study investigated the accuracy of self-monitoring in real conditions, using a simple method of assessment.
Summary of work: During the final test of a discipline, students of the 4th year were asked to select among the 30 multiple choice questions, the ten they considered to be the easiest and the ten most difficult. They were informed that the questions selected as "easy" would be worth 20% more, and the "hard" ones would be 20% less.
Summary of results: 139 from 141 students agreed to participate. The mean score of the questions selected as "easy" (9.1 out of 10) was more than twice the score of those selected as "difficult" (4.1 out of 10). In the group of students with low scores (below median), the majority completed the test faster (below median). On the other hand, the majority of students whose scores were higher than the median spent longer time to complete the test (chi-square=7.43, p=0.006). The time to complete the test and the scores were similar for men and women, but women scored higher in questions selected as hard (F=4.44, M=3.81, t-test=2.5, p=0.016).
Conclusions: When faced with questions of moderate levels of difficulty, students were capable of identifying the limits of their knowledge. The process seems to have been more accurate among those who took longer to complete the test, insinuating an advantage of more extensive usage of reflexive thinking.
Take-home messages: Self-monitoring processes seem to be accurate at the intermediate phases of the medical course and should be considered when designing strategies to induce self-regulated learning. Although influenced by gender differences, reflexive thinking seems to improve performance.

10FF/2
Do Students Receive Effective Written Feedback on Supervised Learning Events?

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Background: Feedback is integral to learning and development. It is one of the top five factors in learner achievement and promotes learning by informing trainees of their progress and of their learning needs. It is reported that more senior students value feedback that is constructive rather than affirmative. Supervised Learning Events (SLEs) were developed to assess performance and increase the amount of feedback given. At University College London Medical School (UCLMS), we have used SLEs since 2008, however students complain about the quality of the feedback provided and therefore question the value of these assessments. The study was designed to assess the quality of written feedback on SLE forms and to determine whether quality varied according to assessor seniority.
Summary of work: A sample of year 4 students was selected to take part using a random number generator. These students were asked to provide their forms for evaluation of the written feedback, in exchange for a gift voucher. A total of 250 forms were received. Feedback was categorised as either: points of good performance, areas for improvement or overall comment. These comments were then graded as weak, neither weak or strong or strong.
Summary of results: Overall 62% of forms were graded weak. By category the number graded weak were 52.8% for points of good performance, 73.6% for areas for improvement and 63.1% for overall comment. There was no difference in the quality of the feedback provided by different grades of doctors.
Conclusions: The quality of written feedback on SLEs at UCLMS was relatively poor.
Take-home messages: Assessors completing SLEs need further training in writing constructive feedback.

10FF/3
Student´s feedback on their performance based on summative and formative results – extended by a structured selection using combined performance criteria

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Background: Since 2012, the Aachen medical faculty combines students' results in both summative and

formative tests to give a better view on the students' performances. The new visibility of performances points to students' problems that previously were hard to detect. An extensive selection of students and thus focussing on special advisory is helpful.

Summary of work: According to summative data, comparison of summative and formative data, and the combination of both, lists of students who are in need of assistance are automatically generated to support mentors. Based on these lists, students are invited for individual advisory talks. Students' strengths can be identified not only on summative data but also based on longitudinal formative data.

Summary of results: The application of the selection criteria of students has led to a more specific feedback and to the need of knowledge in very specific aspects of learning, like learning methods, long-time acquisition of knowledge, and exam nerves. As a result, the feedback sessions can be more specific. The new process shows that the workflow needs to be optimized and well documented since additional feedback sessions for the same students are often necessary.

Conclusions: A more specific selection of students and the active invitation by the deanery of study affairs has a different outcome than self-motivated mentoring. It is also more costly and needs new structures in certain aspects. The measurement of benefit for students and the faculty is difficult.

Take-home messages: Application of different evaluation criteria enriches the process of students' feedback, making it more effective yet more costly.

10FF/4
Online formative tests linked to microlectures improve academic achievement

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Background: Online formative tests (OFTs) are powerful tools to direct student learning behaviour, especially when enriched with specific feedback. In the present study, we have investigated the effect of OFTs enriched with (hyper-)links to so called 'microlectures' on study results.

Summary of work: The course 'Organ Systems' focuses sequentially on the Respiratory, the Circulatory and the Urinary organ system and each is finalised by a midterm summative exam (MSE) composed of multiple-choice questions (MCQ). Subsequently, the full course is completed with a final summative exam (FSE) composed of multidisciplinary essay questions.

For each organ system, OFTs were composed of MCQs with specific feedback explaining the most obvious mistake(s) leading to a particular answer combined with a direct link to the appropriate online microlecture, i.e. fragmented recording of the given lecture. The OFTs were neither obligatory nor rewarded. Previous academic achievement was used as covariate in statistical analyses.

Summary of results: On average 85 students used the online formative tests (OFT+) while preparing for the MSE, whereas 30 did not (OFT-). The average grades for the Circulatory and the Urinary MSEs were significantly higher for OFT+ students compared to OFT- (p< 0.01). The results for the Respiratory MSE approached significance (p= 0.064). Additionally, OFTs seem to improve MSE scores irrespective of students' earlier achievement. Similarly, FSE scores were higher for OFT+ students, albeit not significant.

Conclusions: The use of OFTs helped students to achieve better grades, presumably by identifying gaps in their knowledge especially in highly aligned summative tests.

10FF/5
Occurrence of feedback in a German family medicine rotation

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Background: The curriculum of German medical schools requires a two-week-rotation in family-medicine, however there is scarce data describing whether students receive feedback by the teaching physicians and how this is applied.

Summary of work: Data were collected ethnographically. Two researchers observed the interaction between teaching physicians and students during the individual patient contacts over a period of nine months. The resulting data were recorded using a pre-designed field note form. Data collection was performed in 12 general practice teaching practices associated with Marburg University, Germany. It was observed, amongst other things, whether the students received feedback, and whether this was applied in a positive or negative, or in a specific or non-specific way.

Summary of results: Feedback occurred in only 32.2 % of the 410 observed patient consultations. Of these, it was mostly non-specific and positive (68.9 %), and occurred during consultation with the patient present. In addition, specific negative feedback was frequently used (29.5%). Specific positive and non-specific negative response was rarely given.

Conclusions: Feedback is mostly non-specific, positive and given when the patient is still present. Non-specific

positive feedback like "OK" or "Good!" does not enable the German students to gather important information to improve their performance. The German teaching physicians should be sensitized for the effectiveness of this important tool and also instructed in different feedback techniques.

Take-home messages: Feedback is only sparsely integrated in the undergraduate education of family medicine in Germany.

10FF/6
Effectiveness of Integrated Assessment of Basic Medical Sciences

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Background: To contextualize training and assessment of Basic Health Sciences (BHS) and make BHS practicals relevant to the clinical practice, we introduced innovative assessment IPA (Integrated Practical Assessment) in 2011. The IPA blueprint consisted of 17-stations OSPE, each based on a clinical theme and 2-3 integrated tasks involving application of BHS knowledge with clinical and generic skills. Each station was directly/indirectly observed by trained faculty.

Summary of work: An exploratory case study, using mixed method approach (with a dominant qualitative focus) was conducted at AJK Medical College during academic year-2012. All voluntary participants of Class of 2016 were given a semi-structured questionnaire immediately after IPA and a focus group discussion was conducted with 25 randomly selected participants, recorded digitally, transcribed, coded and categorized into themes. Questionnaire data was analyzed for descriptive statistics. Triangulation of data was done.

Summary of results: Students validated the IPE with positive perceptions. "IPA made us clinically more competent. It improved peer interaction and interpersonal skills. It enabled us to interact with patients and their families unhesitantly".

Conclusions: IPA is a validated tool of performance assessment, even in a resource constrained environment.

Take-home messages: Psychometrics do matter; however, acceptability of assessment to all stakeholders must be explored by qualitative research.

10FF/7
Evaluation of Curriculum by Progress Test

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Background: Progress test is a test of the whole learning process. Questions are chosen depending on the complete learning objectives of medical school and this can give the opportunity to evaluate the curriculum.

Summary of work: We aimed to examine the use of progress tests in a matrix table as part of a feedback process to the curriculum designer and evaluate the strengths and weaknesses of the curriculum. PT was introduced to our students since 2009. We used 200 MCQ single best answer format questions from 40 departments in 11 different organ systems. In total we gathered 713790 answers from students' paper based tests. The Matrix Analysis Table is constructed by question answers tagged to departments' educational activities, followed by evaluation of departments depending on students' response with predetermined difficulty indexed questions.

Summary of results: Answers are embedded to the matrix table to take a snapshot of the curriculum. In a table we summarized organ systems in columns and departments in rows. Endocrine and Metabolism system questions were best correct answers rate while Urogenital System lowest. Infectious Disease Department is rated worst by students' answers as feedback. But by using matrix table we found infectious disease question, which related respiratory system having good correct rate while cardiovascular infectious disease was worst. Such results provide us with the opportunity to criticize a specific point.

Conclusions: Our results show that progress testing is a valid and reliable instrument to evaluate effectiveness of departments and divisions in undergraduate medical education.

Take-home messages: The Matrix Analysis Table gives perfect clues to students and curriculum designers about their strength and weakness.

10FF/8
Does it really matter which language you are educated in? Spillover conclusions of research on efficiency of medical educational programme

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Background: Influence of lingual differences on the success of medical education is still debated. When our University started researching efficiency of its programme in January 2012, we did not intend to focus on lingual differences. However, language of instruction (Russian or Kazakh) was included as covariate and unexpected results came out.

Summary of work: In search for factors influencing success of medical education, 2846 students of Karaganda State Medical University took progress test and were surveyed using Kolb's Learning Style Inventory (KLSI). Progress test served as the main indicator of academic performance. KLSI was used to classify learners into "convergers", "divergers", "accommodators", "assimilators" and assess preference to reflective observation, abstract conceptualisation (AC), active experimentation, and concrete experience. For each respondent, gender, GPA, language of instruction, home region (rural or urban) were also recorded.

Summary of results: We observed higher progress test scores, AC scores and ratio of convergent learning style in students instructed in Russian and coming from urban areas. Multiple regression revealed AC score contribution to better academic performance, and multivariate ANOVA confirmed language of instruction as the most prominent factor for both academic performance and abstract conceptualisation.

Conclusions: In our opinion, the limited availability of clinical and basic science sources in Kazakh (in comparison to Russian) inhibits students' desire to logically process and interpret information, reduces knowledge apprehension and decreases academic performance.

Take-home messages: It is best for the countries with a less influential national language to not limit student's medical education to a single language, but stimulate them to learn and communicate in more prominent languages.

10FF/9

A decade of Web-Based assessments in a medical school: What lies ahead?

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Background: Web-Based assessments in medical schools are now commonplace, with the advent of sophisticated learning management systems. We developed an advanced, homegrown web-based assessment environment a decade ago, and have been conducting all formative and summative assessments online since then. In this paper we describe the development, implementation and evaluation of web-based assessments, with a look into the future.

Summary of work: All formative (weekly) and summative web-based assessments in the first three years of our integrated medical school curriculum are delivered online using a learning management system and standalone assessment software, ExamSoft. Formative assessments employ multiple-choice, open-ended, and USMLE type questions. Students receive brief feedback or elaborate explanations on their responses. Summative assessments are delivered in a controlled, supervised lab environment. Aggregated feedback by tagged keywords is delivered after summative assessments. Automated psychometric information generated is used by faculty to improve robustness of the assessments and improve instruction. We are exploring games and immersive simulations as assessment modalities of the future.

Summary of results: Students have consistently rated web-based assessments highly. We have published research which shows the importance of formative assessments in predicting success on summative assessments.

Conclusions: Web-based assessments require considerable team effort among faculty, administration and IT units. However, they offer a host of advantages for the test-takers, instructors and administrators. Competencies tested across the curriculum can be used for institutional accreditation more expeditiously.

Take-home messages: Flexible, adaptive environments are now feasible with web-based assessments, which have more to offer with advances in development platforms, and mobile environments of the future.

10FF/10

Correlation between scores on multiple choice and short essay questionnaires

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Background: Multiple choice questions (MCQ) are considered the most reliable and valid way of assessing understanding and application of knowledge. Although less reliable and valid, essay questionnaires (EQ) are often used to assess reasoning. We wanted to study how these two examination forms correlate and how

they agree in identifying students who fail the examination.

Summary of work: Results of the end of the fourth year examinations during 2009-12 at the Faculty of Medicine, Norwegian University of Science and Technology were analyzed. At this examination both MCQs and EQs are applied and a sum score is calculated whereby MCQs count 60% and EQs count 40% of the total score (100%). In order to pass the examination a total score of 65% is required.

Summary of results: A total of 459 students completed the written part of the included examinations. The correlation between MCQ and EQ scores was high (Pearson correlation coefficient: 0.62; p<0.001). A total of 38 (8.3%) students failed the examination, and 22 (4.8%) failed on both the MCQ- and the EQ-part. Moreover, 40 (8.7%) students failed the MCQ part, while 64 (13.9%) failed the EQ part. The agreement between MCQ and EQ on which students should have failed the examination was only fair (Cohen's kappa = 0.35).

Conclusions: Our results may be consistent with the notion that EQs are less reliable and valid than MCQs, and that more topics may be tested by MCQs. However, the results may also reflect the possibility that different abilities are tested.

Take-home messages: A variety of examination forms should be applied in high-stake written examinations.

10FF/11
Perception of students on a Script Concordance Test (SCT) on cardiovascular diseases in an undergraduate medical school

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Background: In their 5th year of medical school, students of KU Leuven have a course on cardiovascular diseases. Until today this was partly assessed through SAMCQ and partly by oral examination. Given the importance of assessing clinical reasoning in ill-defined cases in this course, an alternative format was desired. The SCT has these advantages and also measures level of expertise. Therefore, a SCT on cardiovascular diseases was developed. In this study, we evaluate its validity and reliability.

Summary of work: Students took this SCT voluntarily just after the official examination. To demonstrate the validity, we gave participants a survey, questioning some personality traits and students' perception of the SCT in comparison with the official examination. To demonstrate validity and reliability we ran a psychometrical analysis.

Summary of results: 264/418 students participated. This group was comparable with the non-participating (M/F ratio, results on the official exam). With regard to

personality traits, participants viewed themselves rather cautious (80%), but confident (60%), 88% prefers straightforwardness over vagueness. Regarding the SCT examination: 53% agreed they could demonstrate their insights in the course materials; 86% thought the SCT was 'difficult'. Preliminary item analysis revealed that 80/90 questions showed an item-total correlation >0, 2 and an α of 0,87.

Conclusions: The SCT on cardiovascular diseases provide satisfying psychometric results and students perceive it as a valid alternative, although very difficult.

Take-home messages: A SCT can be a valid alternative assessment but must be accompanied with clear test instruction and training before the examination day.

10FF/12
Is a picture worth a thousand words?

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Background: It has previously been suggested that the use of illustrations in MCQs may have variable effects on individual items. This study examines the effect of illustrated questions, as opposed to pure text, to discern if any overall bias between the two formats is detectable.

Summary of work: We reviewed 6 Histology MCQ papers from our Medical Junior Cycle. Classical test theory analysis was performed on all MCQs, which were then divided into two groups, those with associated images and those without.

Summary of results: We analysed 195 single best answer MCQs; 100 with associated illustrations, 95 without. The number of students per examination ranged from 277 to 347, with a total of 60,850 student-question interactions. There was no difference in question difficulty between the two groups (0.800 vs. 0.770; p = 0.862, Mann-Whitney-U). The discriminating power of the questions, as measured by point biserial correlation, was also identical (0.315 vs. 0.300; p = 0.939; Independent t-test).

Conclusions: We found no overall bias or effect on either item difficulty or discrimination resulting from the addition of illustrations. We suggest that illustrated questions, as with textual vignettes, may test a range of cognitive levels depending on how they are employed.

10FF/13
European assessments: HERMES (Harmonised Education in Respiratory Medicine for European Specialists) Initiative of the European Respiratory Society (ERS)

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Background: The ERS provides formative and summative assessments with the European examinations taking place during the annual ERS congress, and in the Netherlands and Russia. 90 multiple choice questions had to be solved within a 3 hour period for this examination.

Summary of work: Rate of participation and their performance in relation to the minimally required score over the period from 2008-2012 for diploma candidates are reviewed. These knowledge-based assessments are run and taken voluntarily by already-qualified respiratory specialists where they receive a European Diploma if successful since 2008. Switzerland uses this examination as the knowledge part of the national exit examination of Switzerland.

Rate of participation for in-training examination and self-assessment is reviewed. These examination goals were introduced in 2010. The examination is an obligatory in-training assessment in the Netherlands.

Summary of Results: A yearly increase in participants for the European diploma was observed. A yearly increase in participants for the European diploma was observed. Year (n diploma candidates, success rate: minimum passing score) 2008 (86, 66.3%:59.3%); 2009(74, 64.9%:58.3%); 2010 (87, 54.8%:57.5%); 2011 (101,64.9%:58.1%); 2012 (130, 76.1%:56.2%); Participation numbers for in-training and self-assessment suggests increasing interest.

Year (N In-training candidates:N self-assessment candidates) 2010(61:2); 2011(139:3); 2012 (142:41);

Conclusions: There is an increasing participation in the examination since its introduction. The perceived value of the ERS examinations are based on its links to practice, educational benefit to its users and the attitude and rigour by which it is set up.

Take-home messages: More countries are expected to adopt the examination for their training, diplomas and certification with the increasing need of many countries to have ongoing evaluation of medical practitioners. Successful models of collaboration with countries (i.e. Switzerland, Netherlands and Russia) in the use of the examination demonstrate educational, logistical, financial and cultural benefits.

10GG ePosters: Clinical 2
Location: North Hall, PCC

10GG/1
Clinical Outcomes of Type 2 Diabetic Patients attending Academic Siriraj Continuity of Care Clinic

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Background: Many type2 diabetic patients (T2DM) did not receive proper medical care to achieve treatment goals based on clinical practice recommendations. Siriraj Continuity of Care clinic (CC clinic) has been established specifically for medical students and internal medicine residency training purpose since 2006. The training components in the teaching clinic might contribute to overall better outcomes for T2DM comparing to regular service clinics.
Summary of work: We retrospectively reviewed medical records of T2DM who were treated at CC clinic and compared with the patients who treated at service clinics of Siriraj Out-Patient Department (OPD) during 2007 to 2011.
Summary of results: Seven hundred and fifty-seven medical records were reviewed. The 383 patients of CC clinic and the 374 patients of OPD were enrolled. The HbA1c was significantly lower in CC clinic compare with OPD (7.3% and 7.8%, respectively)(P<.001). The proportion of patients who received annual diabetic complication assessments were also higher in CC clinic: the percentage of patients who received examinations of the eye, had urine microalbumin checked, had been screened for diabetic foot were 57.1 and 36.7(p<.001), 58.0 and 2.0(p<.001), 81.0 and 36.8(p<.001) in CC clinic and OPD group, respectively. Moreover, there were more patients who received adult health maintenance program including: cancer screening (clinical breast examination, mammography, FOBT and pap smear) and immunization (influenza, diphtheria-tetanus and pneumococcal vaccine) in CC clinic (p<.001).
Conclusions: The diabetic patients who were treated in CC clinic had better clinical outcomes as well as received better screening and health maintenance program comparing to regular service clinics.
Take-home messages: The focus training components in this clinic has played a major role on contributing the preferred clinical performance among medical students and internal medicine residents.

10GG/2
Classroom to Clinician: An effective method of teaching radiograph interpretation and presentation

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Background: Precise interpretation and presentation of abdominal (AXR) and chest radiographs (CXR) are essential skills to ensure optimal management and outcomes for patients. Whilst radiograph interpretation is taught in the medical curriculum, presentation is a skill often taught anecdotally on the wards. We show that a previously validated method of teaching clinical presentation skills is effective for radiograph teaching.
Summary of work: Third year medical students attended CXR (n=39) and AXR (n=38) workshops and were taught a framework for interpretation and presentation. They practiced these skills in small groups. Students completed 3, radiograph interpretation multiple choice questions (MCQs) pre- and post-workshop in addition to scoring their subjective presentation confidence and effectiveness. They also scored their baseline overall personal confidence.
Summary of results: Following both workshops, students reported an average increase in presentation confidence by 25% (p<0.05) and effectiveness by 25% (p<0.05). This correlated to an average increase in MCQ performance post-workshop by 36% (p<0.05). Interestingly, students who ranked their baseline confidence as low reported on average a 9% greater increase in presentation confidence and effectiveness compared to their high baseline confidence counterparts. All students indicated these workshops should be integrated into their curriculum.
Conclusions: Focused workshops teaching radiograph interpretation early in training can improve both subjective and objective outcomes. This method of teaching may benefit students with low personal confidence in particular.
Take-home messages: Given the positive outcomes, teaching these skills in the medical school curriculum

would be beneficial for student confidence, diagnostic ability and ultimately patient care.

10GG/3

Comparison of Cardiopulmonary Resuscitation Training program for medical student between integration to anesthesia curriculum and independent separation course

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Background: For developing a CPR training course and integrated scenario for learners, we determined the effectiveness of incorporating it into the anesthetic curriculum (IC) compared to independent separation course (IS).
Summary of work: One group of 24 medical students were enrolled in group 1 (IC) compared to 24 student in group 2 (IS). Two adult resuscitation simulation scenarios (Megacode) in which each participant was the code leader to evaluate knowledge and skills, was assessed and reviewed by two instructors independently. Outcomes measurement included basic life support (BLS)/advanced cardiac life support (ACLS) in aspect of ECG analysis, pharmacology, practical application, number of critical actions during Megacode at baseline and after the training program.
Summary of results: Baseline students were similar. Total BLS/ACLS knowledge score were higher in IC than IS group (73.87 vs 54.32, p = 0.000). Students had moderate confidence level for performing CPR and satisfactory 10-point rating scale for CPR program was 8.75 in both groups (p=1.00). Both groups had knowledge in BLS and all aspects of ACLS significantly (p=0.000). During Megacode both groups received borderline to satisfactory performance by instructors (83.3%). Most common errors during CPR were confirmation of medication administration (83.3%) and misinterpretation of coarse ventricular fibrillation ECG (79.0%).
Conclusions: Incorporating CPR course had higher examination score than separation course, but confidence to perform CPR and satisfaction for both training programs were not significant.
Take-home messages: Incorporating CPR training program into anesthesia curriculum is a more effective teaching method in respect of knowledge score.

10GG/4

Reasons for choosing vaginal or cesarean birth for themselves or their partners among senior medical students

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Background: In Brazil, there is an urgent need to seek strategies to reduce a very high rate of cesarean section. Most of the medical schools still rely on a technocratic model which emphasizes an interventionist and medicalized approach without interdisciplinary work. Aim: To examine the preferences and reasons for mode of delivery for their own children among senior undergraduate medical students.
Summary of work: Cross-sectional, quali/quantitative study was carried out using a questionnaire applied to senior medical students. Questions assessed the chosen mode of delivery in the event of a hypothetical pregnancy and justifications for their choice. Answers were grouped in categories.
Summary of results: Fifty-three out of 90 students answered that their preference was for a vaginal birth. The reasons for their choice included: "lower maternal/perinatal risks", "natural/physiological/less aggressive", and "faster/painless recovery". The remaining 37 chose cesarean section and the justifications included: "less pain/suffering", "fear of anatomical changes", "predefined schedule/timelines", and "lower maternal/perinatal risks".
Conclusions: Medical education should offer students experience on caring for less painful vaginal births.
Take-home messages: To reach this goal, it is essential that they are exposed to evidence-based birth practices in the medical school, including: presence of a birth companion chosen by the women, continuous birth support, pharmacological and non-pharmacological pain relief methods, and interdisciplinary care.

10GG/5

Early Introduction of Respiratory Diagnostic and Therapeutic Skills to Medicine and Dentistry Students at the University of Alberta (FOMD)

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Sandy Sandilands (University of Alberta Hospital, Respiratory Therapy, Edmonton, Canada)

Background: Respiratory illness is common. Our group developed a Respiratory Skills Laboratory (RSL) focusing on key diagnostic and therapeutic skills required to manage respiratory patients. Questions: how is the RSL perceived by learners?
Summary of work: The RSL's goal was to introduce learners to use of a bag-mask device, arterial blood gas sampling, oxygen therapy and Continuous Positive Airway Pressure/Non-Invasive Ventilation. Resources are available upon request. The lab consisted of 4 fifteen-minute stations. Students rotated in groups of 12. Stations were facilitated by content experts. Facilitators provided a brief overview. Hands-on experience was encouraged. Participants then completed a survey.
Summary of results: 201 students (167 MD, 34 DDS) took part. 177 students (88%) completed the survey. Scores (n/5.0): objectives clarity, 4.2; allotted time, 2.6; relevance, 4.5; enhanced comprehension, 4.4; overall value, 4.7; bag-and-mask, 4.6; oxygen, 4.5; CPAP/NIV, 4.5; ABG, 4.7. 97% of students agreed or strongly agree that the RSL was valuable. Station scores ranged from 4.5 to 4.7. 95% of students agreed or strongly agreed that the experience improved their comprehension of respiratory medicine. Medicine and dentistry students differed regarding relevance of the session (3.8 vs. 4.7; p =<0.01).
Conclusions: Student feedback to a RSL is favourable. Student scores support the allotment of more time to the activity as well as the addition of two stations: inhaler devices and spirometry.
Take-home messages: The time allotted to the RSL is being increased. The two additional stations suggested by students are being added. Impact on student performance will be assessed. Follow-up respiratory skills sessions may be integrated into later years of the MD/DDS programs.

10GG/6

Logbook analysis: an evaluation strategy for a new Internal Medicine clerkship

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Rodrigo Escalante (Universidade De Fortaleza, Nami, Fortaleza, Brazil)
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Jacqueline Van Wyk (University of Kwazulu-Natal, Education Consultant, Durban, South Africa)

Background: Logbooks are well known as a student assessment tool, especially for auditing learning in clinical settings.
Summary of work: Internal Medicine clerkship in a new medical school has been offered over a five month period: one month in emergency department and three months in different general hospital wards and Intensive Care Unit. A logbook was introduced as a tool in the clerkship assessment system. The quality of learning experience was evaluated during 18 months of clerkship implementation, analysing 120 logbooks at the end of three semesters. A quantitative analysis was conducted of the most prevalent clinical cases and procedures performed by students, and compared to proposed learning objectives for their clerkship.
Summary of results: The most prevalent cases followed by students were deep vein thrombosis; stroke; digestive tract diseases; pneumonia; diabetes; heart failure; sepsis and shock. Most common procedures were peripheral arterial puncture; peripheral and central venous access; tracheal intubation and paracentesis. Some wards did not allow students an opportunity to achieve expected learning objectives. There were gaps in learning experience in renal, endocrine and rheumatologic diseases. Students complained about lack of supervision in some settings. These findings resulted in adjustments in rotations (included outpatient clinic) and increasing of preceptors in each ward to address the identified gaps.
Conclusions: Evaluation of logbooks and formative feedback to students became a monthly event to allow adjustments, before the rotation ends.
Take-home messages: The findings suggest that logbook has also a strong potential as program evaluation tool, especially in clinical settings beyond the university boundaries.

10GG/7

Interactive Operating Theatre for Students of Dentistry

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Background: Teaching undergraduate students of dentistry consists of lectures, seminars and practical exercises. It also includes the participation of students in the operating room, where they assist during the procedures. The surgeons are trying to show students the greatest possible number of different procedures, but for operational reasons, only two students can be present at a time. This greatly reduces the number of those who can directly observe the surgeon during the procedure. Good visualization along with theoretical knowledge are essential to the acquisition of surgical practices.

Summary of work: The aim of the project was to create a multimedia classroom connected to the operating theater, enabling students of dentistry to watch live surgeries. Students have the opportunity to enter their questions into a discussion with members of the operating team. The surgeon can get immediate feedback from students.

Summary of results: The procedures were recorded and are used in lectures and seminars of periodontics, dentoalveolar surgery and other fields of dentistry.

Conclusions: The project improves and expands educational opportunities for students of dental medicine at our faculty.

Take-home messages: Interactive operating theatre helps to educate a greater number of students of medicine and improves the impact of the education.

10GG/8
Is there still a place for old school skills teaching?

Lisa MacInnes (University of Edinburgh, Centre for Medical Education, Chancellors Building, 49 Little France Crescent, Edinburgh EH16 4SB, United Kingdom)
Lorraine Close (University of Edinburgh, Centre for Medical Education, Edinburgh, United Kingdom)
Val McDowall (University of Edinburgh, Centre for Medical Education, Edinburgh, United Kingdom)
Barbara Findlay (University of Edinburgh, Centre for Medical Education, Edinburgh, United Kingdom)
Janet Skinner (University of Edinburgh, Centre for Medical Education, Edinburgh, United Kingdom)

Background: Medical undergraduates at The University of Edinburgh are taught core practical skills within clinical skills labs. Technical skills such as Venepuncture are taught using part task trainers. Following this experience students are encouraged to consolidate their practice and skills in clinical areas with patients. Formal University evaluation and informal face to face discussion has revealed that students can struggle to gain opportunity to practise their skills.

Summary of work: The clinical skills teaching team wanted to support students and assist with breaking down the barriers to patient practice. It was proposed that a pilot should run inviting students who attended their formal clinical skills teaching session, to sign up to voluntary supervised sessions within the clinical skills lab, where they could act as surrogate patients for the skill of venepuncture to be practised. Students were asked to complete a questionnaire which explored the

barriers in gaining experience in venepuncture and cannulation skills. The aim of the project was to increase student confidence by providing experience and feedback to help break down the barriers by learning from each other.

Summary of results: Students identified a number of barriers to practising their skills on real patients. This project provided opportunity for practice with supervision and feedback and consequently increased student confidence, directly improving their chance to access patients.

Conclusions: Conclusions of the project will be presented at conference.

Take-home messages: Practising clinical skills on each other gives medical undergraduates more confidence to gain experience in clinical areas.

10GG/9
Learning /non-learning process and key aspects of teaching in clinical placements: an analysis of medical students' self-descriptions on their learning experience

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Yasuhiko Konishi (Kyoto University, Center for Medical Education, Kyoto, Japan)

Background: Although previous studies emphasized active support and engagement of teachers are important in undergraduate clinical teaching, it is still obscure that what teachers should do as 'support' to medical students. Reflections by students will suggest teachers some useful implications towards this issue.

Summary of work: At the Faculty of Medicine, Kyoto Univ. Japan, we deliver programs for 5th and 6th year students to reflect on their learning experience and consider how they learn further in clinical training. Students are encouraged to describe what and how they learned/did not learn with possible reasons for it, by answering open-ended questions. In this study, their descriptions were analyzed to clarify the elements of their learning/non-learning process, with intention to examine key aspects of teaching in clinical settings.

Summary of results: From analyzing the data qualitatively, it was clear that their learning happened when they felt their knowledge was changed from theoretical to practical. On the other hand, they did not feel they had learnt something when they were unsuccessful to see people and workplace as a useful resource for their learning. This implies that learning for medical students means self-development as learners, rather than merely acquiring clinical skills.

Conclusions: It is concluded that there are several key aspects of teaching in undergraduate clinical placements. 1) Development of students into self-directed learners, 2) Students' learning how to learn from people and workplace, 3) setting up learning climate, 4) awareness of restrictive nature of workplace.

Take-home messages: For medical students who transit their knowledge from theory to practice, effective

'support' is to assist them to become self-directed learners.

10GG/10
Educating undergraduate medical students about the topic of unexplained physical symptoms: a systematic review

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Sophie Park (UCL, Department of Population Health and Primary Care, London, United Kingdom)
Marta Buszewicz (UCL, Department of Population Health and Primary Care, London, United Kingdom)
Kate Walters, UCL (Department of Population Health and Primary Care, London, United Kingdom)

Background: While some patients present with clearly defined disease patterns, others experience physical symptoms which are unexplained by known organic pathology. These patients present several challenges to clinicians, students and medical educators, including negotiating appropriate management of: uncertainty; illness-disease boundaries; and use of investigations and referrals.
Summary of work: We systematically identified, summarised and synthesised the existing literature that evaluates teaching about unexplained physical symptoms to undergraduate medical students. Electronic databases and four journals were searched. Retrieved items were double screened using predefined inclusion criteria. Included full texts were quality assessed using the CASP tool. Noblit and Hare's meta-ethnographic synthesis methods were used to address pre-determined research questions and seek emergent themes from the texts.
Summary of results: Five papers were included from 1694 abstracts found. Most teaching was delivered in the 4th year, but was heterogeneous regarding content, structure, duration, and learning methods used. All studies evaluated student/teacher attitudes - 2 evaluated attitude change. Barriers to teaching this topic included: tutors lacking confidence in their expertise to teach it; lack of interdisciplinary teaching; resistance towards the topic from some faculty members and students.
Conclusions: Discordant views found within medical faculties may reflect the differing paradigm perspectives within clinical and medical education communities at large. These influence students throughout their training in formal and informal learning environments. Both teachers and students are learners in this evolving field.
Take-home messages: Educators need to address certain challenges in order to incorporate important teaching about patients with unexplained physical symptoms into medical curricula.

10GG/11
Innovating Education for Pharmacogenomics in Clinical Practice at Mayo Clinic

Jerry Swanson (Mayo Clinic, Center for Individualized Medicine, 200 First Street, SW, Rochester, Minnesota 55905, United States)
Carolyn Rohrer Vitek (Mayo Clinic, Center for Individualized Medicine, Rochester, Minnesota, United States)
Petra Casey (Mayo Clinic, Center for Individualized Medicine, Rochester, Minnesota, United States)

Background: Increasing evidence indicates that human genetic variation modulates drug responses. Compelling arguments support using information on genetic variation to guide the choice of medications and dosages. The development of electronic medical records (EMRs) facilitates the dissemination of this information.
Summary of work: At Mayo Clinic, a pharmacogenomics task force selects drug-gene pairs for inclusion in the EMR. An interdisciplinary group contributes to this multi-faceted process and includes educators, information technology experts and content experts. An alert is triggered when a prescription for a drug is prescribed in the EMR. The alert describes the interaction and what gene test should be considered and why or indicates that there is already a test result for review. A link is provided for additional information about the drug-gene interaction. The information of the drug-gene interaction is curated and updated as needed.
Summary of results: The initial gene-drug pairs have been implemented into the EMR. Significant effort has been expended to create work-flows which ensure the accurate and efficient provision of this information to prescribers.
Conclusions: The process to develop the information and system for the effective provision of drug-gene interactions has been enlightening and has required a coordinated, interdisciplinary approach. Pharmacogenomics information will play an increasing role in improved effectiveness and safety of drug therapy.
Take-home messages: The introduction of pharmacogenomics information into clinical practice will allow for the fulfilment of the promise of, "right drug, right dose, right time" and have an important impact on patient safety.

SESSION 11: Plenary 3
Wednesday 28 August: 1045-1230

11A Plenary: The things we know, the things we think we know but don't, and the things we don't know but should
Location: Congress Hall, PCC

Geoff Norman (McMaster University, Canada)

Summary: It is now more or less accepted that all educational interventions are created approximately equal. Systematic reviews provide little basis for continuing the common practice of espousing the virtues of one learning method over another. Such persistent beliefs in the face of negative evidence are pervasive in education. Conversely, contemporary educational psychology has identified a number of powerful educational interventions that can lead to large learning gains with minimal investment. Some examples are mixed practice, distributed practice, test-enhanced learning. Yet these strategies remain largely unknown to the medical education community. In this talk, I will systematically explore things we think work that don't, and things that do work that we don't know about. I will then advance some reasons why this may be the case, and some suggested strategies to avoid these problems in future.

Biography: Geoff Norman is Professor of Clinical Epidemiology and Biostatistics, McMaster University. He received a Ph.D. in nuclear physics from McMaster University in 1971, and subsequently a M.A. in educational psychology from Michigan State University in 1977. He is the author of 10 books in education, measurement and statistics, and 300 journal articles. His primary research interest is in cognitive psychology applied to problems of learning and reasoning. He presently holds a Canada Research Chair. He was elected a Fellow of the Royal Society of Canada in 2007. In 2008, he won the prestigious Karolinska Prize for lifetime achievement in medical education research.

11B Plenary: Taking evidence seriously: what would happen to our training programmes?
Location: Congress Hall, PCC

Cees van der Vleuten (Maastricht University, the Netherlands)

Summary: Research in (medical) education has matured considerably and the body of knowledge has increased substantially. What are the big messages that come through from the research about the effectiveness of our teaching and learning programmes? What works in education? How does that relate to what we do in educational practice? What if we were to take the evidence seriously? How much colouring outside the lines would we need to do? Should we radically change?

Biography: Cees van der Vleuten trained as a personality psychologist and psychometrician and has a PhD in Educational Sciences from Maastricht University. He is Chair of the Department of Educational Development and Research and Scientific Director of the School of Health Professions Education at Maastricht University. His area of expertise lies in evaluation and assessment. He has published widely on these topics and holds several academic awards for this work including several career awards. He has frequently served as a consultant internationally. He has been a supervisor of more than 40 PhD students.

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