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HEALTHCARE IMPROVEMENT IN THE ADMISSION DEPARTMENT OF SECONDARY HEALTHCARE FACILITIES UNDER COUNTERACTING THE COVID-19 PANDEMIC

Abstract. *The COVID-19 pandemic tested the strength of the Ukrainian healthcare system. At the same time, it provided high-powered incentives to improve measures to implement the second stage of health care reform The admission department is one of the most important hospital departments, which receives consumers of medical services in need of a qualifying examination and hospitalization under the protocol. The authors noted that all available resources were mobilized to prevent the spread of acute respiratory disease COVID-2019, caused by the spread of coronavirus SARS-CoV-2. Thus, the government has faced the need to develop and implement a list of large-scale infrastructure and personnel changes in a limited period. This article emphasized the concept of the effectiveness of medical services provided by the admission department of a secondary healthcare facility (HCF) in counteracting the COVID-19 epidemic. The study goal is to identify ways to improve the provision of medical services by the admission department of a secondary HCF during the coronavirus epidemic. The study was conducted on real data of Central District Hospital in Shostka, Sumy region, Ukraine. The methodological basis of the study was a systematic approach and the basics of general management theory. The study identified problems faced by hospitals during the COVID- 19 pandemic. Following the findings, the modern scientific and theoretical views on the epidemiology, diagnosis, and treatment of acute respiratory disease COVID-2019 were identified. The authors analyzed the domestic and world practice of healthcare management during the pandemic COVID-2019. The paper evaluated the readiness and healthcare delivery by the admission department of a secondary HCF under the SARS-CoV-2 spread. The indicators to measure the effectiveness of medical care quality provided by the admission department of a secondary HCF in counteracting the coronavirus epidemic were studied. Based on the obtained results, the authors developed recommendations for improving the management system in providing medical services by the admission department of a secondary HCF during the COVID-2019 pandemic.*

Keywords: COVID-2019, secondary health care, healthcare reform, healthcare facility, healthcare management, admission department.

Introduction. The COVID-19 pandemic has challenged the Ukrainian health care system while provided a powerful impetus to improve measures under the second phase of health care reform. For preventing the spread of acute respiratory disease COVID-2019 caused by the spread of coronavirus SARS-CoV-2, the current material and personnel potential were mobilized. Thus, the government faced developing and further implementing a list of large-scale infrastructure changes for a limited time. The corresponding transformations concerned the several directions as follows:

– operative reprofiling and construction of additional admission departments and hospitals of the infectious profile;
– implementing mass diagnostics for coronavirus infection as soon as possible;

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– the rapid delivery of drugs, personal protective equipment, test systems, and medical equipment in medical organizations.

The Law of Ukraine «On State Financial Guarantees of Public Health Care» of 19 October 2017 (On State Financial Guarantees of Public Health Care, 2017) launched the beginning of the national health care reformation concerning: paragraphs 4 and 5 of Section IV «Final and Transitional Provisions» Law of Ukraine «On State Financial Guarantees of Public Health Care», Article 22 of the Law of Ukraine «On the State Budget of Ukraine for 2020» (On the State Budget of Ukraine for 2020, 2019), the Budget Code of Ukraine, The Cabinet of Ministers of Ukraine has begun practical implementation in the Law «On State Financial Guarantees of Medical Care», with the adoption of Resolution №1124 of 27 November 2019 «The Procedure for Implementing State Guarantees of Health Care under the Program of Medical Guarantees in 2020».

Following the updates related to the introduction of the first and second stages of healthcare reform, the introduction of hospital districts and hospital councils throughout Ukraine provides additional opportunities to create a strong branch system of healthcare facilities (HCFs) of active treatment of the first and second level of specialized medical and diagnostic treatment, HCFs of planned and rehabilitative treatment, etc.

The admission department is one of the most important hospital departments, which receives consumers of medical services in need of a qualifying examination and hospitalization under the protocol. However, it stands to note that hospital beds in Ukraine are filling up at high speeds during the coronavirus pandemics. Besides, most hospitals were reoriented to receive patients with COVID-19.

Considering the growth of medical care provided by admission departments to counteract the coronavirus epidemic, there are many shortcomings and current problems as follows:

– the mixing elective and emergency patients, as well as patients of neurological and cardiac profile with patients suspected of COVID-19, could spread pandemic;

– the inefficiency in routing and coordinating consumers of medical services;

– the limited number of necessary staff, which affects the completeness and quality of their own professional duties;

– the morbidity incidence growth among the employees of the v due to fatigue and overwork, as well as in parallel due to non-compliance with the rules of personal protection of health workers (negligent use of personal protective equipment, their absence, or insufficient number).

On the matter of development and spread of the coronavirus pandemic worldwide, the world community has established and implemented the following management measures to ensure effective control of the COVID-2019 pandemic:

– tracking the contacts of potential coronavirus carriers and the availability of testing procedures, informing timely on the growth of COVID-2019 cases, isolating patients to special institutions, physical distance (initial measures);

– telemedicine, improving the efficiency of healthcare management to build comprehensive management of patient stream, reformatting outdated standard treatment protocols with the subsequent reproduction of an effective mechanism for providing healthcare in the «right places»;

– supporting the appropriate level of minimum stocks of personal protective equipment by pharmacies, as well as public and private pharmaceutical facilities, involving state enterprises to produce the means of individual protection, equipment, free use of cars (converted into ambulances);

– creating national and regional interconnected systems in mitigating emergency to maintain further the international coordination directions such as creating the mechanism on centralization of patients sorting, analytical data application to track contacts, etc .;

– providing additional technical support to the hotline using telemedicine, developing an additional scheme for home care, distancing (allocation to a separate group) of healthcare facilities and ambulances

aimed to improve anti-epidemic measures, and provide healthcare to the admission department of secondary healthcare facility in SARS-CoV-2 infection center, disseminating the «unloading» policy for additional places realize in the intensive care unit for severely ill;

– introducing additional medical courses for the entire staff of each healthcare facility (means of individual protection and infection control), cross-trainings, schedule change and working hours extension, a clear redistribution of functional responsibilities, improving the psychological status, and increasing stress.

Considering the current problems in the healthcare management of admission departments in Ukraine and their exacerbation since the coronavirus pandemic, as well as the best practices of adapting management to changing conditions, it is necessary admission departments of secondary healthcare facilities develop and implement new management principles in medical treatment under pandemic COVID-2019. Therefore, the mentioned above is the cause of the research topic.

Literature Review. Improving medical quality is a current concern worldwide. Besides, that is particularly important in developing countries, as the quality of their medical services differs significantly from the standards of developed countries. During epidemics and pandemics, the quality of service delivery usually declines significantly. On the contrary, the workload of health workers increases. Systematization of scientific background showed that many domestic and foreign studies addressed improving the management of the medical services. In turn, recently, scientific attention is riveted on the management of medical services in the pandemic.

Mafham et al. (2020) considered the experience of England in providing medical care during the pandemic COVID-19. The study focused on whether the medical care quality for patients with diagnoses other than COVID-19 is declining. The findings showed that the average weekly number of patients with diagnoses other than COVID-19 hospitalized in England had significantly decreased at the end of March 2020 compared to 2019. The reduction in the number of patients during this period probably led to an increase in outpatient treatment and long-term complications in patients with diagnoses other than COVID-19. These findings show that during pandemics, even developed countries face the problem of significantly reducing the quality of health care for people with diseases other than the disease different from the COVID-19.

Ageron et al. (2020) considered how the COVID-19 pandemic affected the admission department. The researchers noted that the admission department is one of the first in managing patients with COVID-19 from screening to initial treatment of the most severe cases. Because the clinical manifestations of COVID-19 range from nonspecific symptoms to acute respiratory distress syndrome in adults (ARDS), the admissions staff is responsible for patient distribution. Patient orientation (home, hospitalization, hospitalization in the intensive care unit) is a central aspect of emergency management. The transition from a strategy of systematic identification of potential cases to a strategy of mitigating the epidemic consequences required hospital emergency services to implement measures to resolve crises and guarantee admission and hospitalization.

Emergency management during the COVID-19 pandemic was also considered by Schreyer et al. (2020). According to the authors, hospital admissions should be ready to manage crises and disasters in both the short and long term. The 2019 coronavirus pandemic requires a rapid review of aspects of hospital operations. Aspects of admissions capacity, including patient screening, patient placement, distribution, and communications department procedures and staffing models, were considered. Besides, the visitor rules were discussed. Special considerations are given to airway management and care for psychiatric patients. Brief instructions on the use of personal protective equipment are also included.

Yavorovsky et al. (2020) investigated medical personnel's hygiene and occupational safety under overcoming the pandemic COVID-19. The authors assessed the working conditions of medical staff and identified the main risks associated with COVID-19. The findings showed that doctors worked in dangerous

(extreme) conditions. Since there was a shortage of means of individual protection or improper use, the healthcare workers were at higher risk with the SARS-CoV-2 virus. Working in hazardous conditions in HCFs provoked the growth of COVID-19 incidences among health workers. The structure of medical workers with diagnosed acute COVID-19 are as follows: nurses –38.43%, junior nurses – 22.69%, and anesthesiologists – 5.87%. Analysis of the study results showed that COVID-19 preventive measures and safety enhancement in the hospitals should be aimed at stricter compliance with domestic legislation and regulatory requirements for the health and safety of medical personnel and infection control.

Management of intensive care units of COVID-19 in Italy was considered in the study (Shkurupii et al., 2020) while the Ukrainian government sent the medical workers (mainly anesthesiologists) with a humanitarian mission Italy at the Italian government's request on assistance in combatting the COVID-19 epidemic. The study presented the gained experience in organizing anti-epidemic measures, clinical management, and tactics of intensive care of COVID-19 patients gained by Ukrainian anesthesiologists during a humanitarian mission in Italy. The authors highlighted that the mentioned above experience in hospital management of patients with COVID-19 could be used by practitioners since the lack of evidence-based and unified international recommendations.

On the other hand, the study (Vynohrad et al., 2020) proposed measures to optimize the anti-epidemic measures against the COVID-19 pandemic spread. The authors noted that anti-epidemic protection differs depending on the country. In turn, the most effective was a set of quarantine measures in combination with early detection of epidemic outbreaks and blocking. Moreover, the massive population affection in most countries showed the hospital's inefficiency, epidemiological, and laboratory medical units, which are crucial in overcoming the pandemic. Herewith, the lack of treatment and prevention needs constant monitoring of the epidemic situation and timely correcting measures to control its negative trends. HCFs are at high risk of infecting both medical staff and those seeking medical care, which requires specific infection control measures for COVID-19 at all levels of care, including the evacuation and sorting of patients.

Methodology and methods. The methodological basis of this study is a systematic approach and the fundamental prerequisites of general management theory. The study involved the abstract-logical and system-structural analysis to determine the problems faced by reception offices during the COVID-19 pandemic; statistical and expert assessment methods to determine the dynamics of employment of the bed capacity of the infectious profile, laboratory tests, and the code structure of final pathological diagnoses according to ICD-10 (International Classification of Disease). The study was conducted on real data of Central District Hospital in Shostka (SHCDH).

Results. Following the Law of Ukraine as of 30 March 2020, № 539-IX «On Amendments to Some Legislative Acts of Ukraine on Provision of Treatment of Coronavirus Disease (COVID-19)» and the Resolution of the Cabinet of Ministers of Ukraine as of 11 March 2020 «On prevention of the spread of COVID-19 acute respiratory disease caused by the SARS-CoV-2 coronavirus in Ukraine», the process of preparing and assessing the secondary healthcare facility in the SARS-CoV-2 infection focal point could be grouped as follows:

- creating a key team of responsible persons and methodology of internal and external communications;
- resources and premises;
- data protection and information exchange;
- personal protective equipment, disinfection, and waste disposal;
- sorting, first contact rule, and prioritization.

Indeed, the human factor (personnel, the team that makes management decisions and implements them) is the most important link in management. It stands to note that the team includes the administration, the team responsible for infection control (epidemiologists and infectious disease specialists), experts in

intensive care, radiation diagnostics, laboratory services, clinical pharmacology, regime services, security, transport, etc. If it is necessary, consultants are connected. For forming the team which could provide effective management of the admission department, it is necessary to fulfill the following points (On approval of the Concept of the National Program «Health 2020: Ukrainian dimension», 2011):

- providing clear division and clear understanding of the roles of each team member;
- ensuring clear identification of patients' contact details and the order of communication with them;
- ensure adequate distribution of powers and functions (administration, nursing staff management, resuscitation management, biosafety control, engineering service, laboratory, etc.);
- determining the procedure for documenting all team decisions and results (protocols, checklists, orders, procedures, etc.);
- describing the procedure for laboratory diagnosis of COVID-19.

The main tasks of the admission department include expansion constraint of infection and protecting staff; primary sorting the patients according to the probability of COVID-19 cases and their severity.

Key principles of the admission department include:

1. Personal organization (On approval of the procedure for organizing epidemiological surveillance of influenza and acute respiratory viral infections, arrangements for preparedness in the inter-epidemic period and response during the epidemic season of influenza and ARVI, 2019):

- organizing the personnel work on a shift basis. The intersection of workers during the shift handover is excluded. Separate routes are organized for those who go to work and those who leave it (when shifts handover);
- the number of personnel working simultaneously in the infected area should be strictly limited and dictated by the appropriateness and level of workload;
- a stable composition of teams that are capable of working together, a high level of understanding, and a favorable psychological climate in the team;
- calculating the number of employees required to work on the initial sorting and admission of patients should be based on the fact that continuous work in infection with a complete set of personal protective equipment should not exceed 4 hours;
- total working time is no more than 12 hours, including 1 hour for rest and meals. Employees of one shift come to work and leave it at the same time. Going out of the admissions office requires the sanitary passage, a complete change of personal protective equipment
- the team's minimum composition is two doctors, two nurses, one registrar, and one employee who performs disinfection.

2. Relatives/attendants are forbidden in the admission department. All original documents for copying are returned to relatives in a disposable plastic bag or stored in the reception department in a specially designated place. All documents are subject to disinfection (quartz treatment).

3. Marking. For the operational comfort and acceleration of business processes, all workers in a zone should have markings (color of a dressing gown or other appreciable distinctive signs, etc.).

4. Personal protective equipment. Depending on the functionality, staff may have different levels of protection. In most cases, it is a set of Personal Protective Equipment 2 (surgical mask, surgical gown, gloves, eye protection, and a hat). The staff is dressed in medical clothing, which is also disinfected and washed after the change. Entry into the area of infection in personal clothing, except for underwear, is prohibited.

5. Observance of discipline. The shift appoints a senior shift manager who manages all the work and makes decisions - the duty officer. The shift appoints a person who is responsible for compliance with security measures. It is possible to use video recording and remote monitoring to fix violations of isolation rules (depressurization of personal protection and the possibility of direct exposure to the virus, actions aimed at increasing the risk of infecting other team members, gross violations of discipline). Such an

employee is considered to be an exposure. Thus, he is suspended from work after the end of the shift. Besides, such worker is subject to isolation following the rules and regulations in force in the organization.

6. Staff relocation to the admissions office. The organization should be carefully thought out in advance and drawn in a clear diagram, which is available to all members of the team for inspection, all types of typical movements in the admissions area, such as patient inspection area, examination equipment area, biomaterial collection and storage area, area for document management. Movements in the admission department of patients/staff should provide a minimum of close contacts and movements while maintaining staff contact with the patient.

7. Disinfection. The organization must develop and approve a protocol for the admission department's disinfection. Disinfection should be ongoing after each shift. All objects that come into contact with the patient are subject to disinfection. Cleaning staff must be personal protective equipment (mask, bathrobe, gloves, screen/goggles). Computers, keyboards, and other equipment are treated with antiseptic at least once an hour. Thermometry, pulse oximeter, phonendoscope should be treated with wipes with antiseptic after each use of the equipment.

8. Communication. Communication between the admissions staff and the rest of the hospital and outsiders could be done using a hands-free headset or walkie-talkies. All means of communication are subject to current disinfection and complete disinfection after the change.

9. Documentation. Electronic record maintenance is optimal such as an electronic patient history with pre-created fields for filling out survey data, checklists, and other strictly standardized documents, such as clinical examination protocol, filling in risk scales, formalized CT (computer tomography) protocol, X-ray examination. Thus, it is unpreferred to use hard copies. All documentation received from the patient should be scanned and attached to the medical history. Suppose the organization could not maintain electronic records. In that case, the paper history issued in the admission department should be stored in an isolated place and disinfected (quartz treatment) before transferring to another department.

10. Communication between the services involved in decision-making (admission department, intensive care unit, inpatient departments, infectious disease specialist, pulmonologist, other specialists, administration) should be carried out according to a pre-prescribed mechanism to save time. It is recommended to use audio and videoconferencing. The order of examination of the patient and his further transportation is carried out according to prearranged protocols. The decision to deviate from the protocol is made by the person responsible for the shift.

11. Places of patient examination. Isolated rooms with closed doors and air extraction systems (boxes) with negative pressure are optimal for inspection and examination of patients. All patients are in masks.

12. Patients in extreme need of procedures with a high risk of aerosol-generating should be in an isolated room with air extraction systems and air filtration.

13. Collection of samples for COVID-19 infection (nasal and oropharynx swabs) should be performed in a separate room with a closed door.

14. Waste collection and destruction. All waste in the admission department should be collected as Class B waste in separate packages. In turn, they should be destructed under the rules of a particular organization. Waste is collected for destruction at the end of each shift.

The above principles are significantly crucial during the COVID-19 pandemic. Therefore, they should be implemented in every secondary HCFs in Ukraine.

This study involved the analysis of care quality provided by the secondary admission departments to determine their management effectiveness in retaliation against COVID-2019. The study object is Central District Hospital in Shostka (SHCDH) (Sumy region, Ukraine). The department of infectious disease is a structural subdivision of the SHCDH. It provides specialized inpatient medical care to patients of varying severity infectious diseases. The department of infectious disease of the SHCDH is located in a separate adapted room with a designated area, far away from the city center. The department provides 25 beds,

located in 15 wards by the following groups: intestinal group; drip group; side compartment in dangerous infections. The department includes the admission department, wards for separate patient hospitalization; manager's room; staff room; chief doctor room; nurse's area; senior nurse's room; examination; storage pantry; food distribution room for patients.

During the monitoring, the authors carried out control with further analysis of the statistical indicators of morbidity dynamics, mortality, and recovery of the population of Shostka and Shostka district from COVID-19: the dynamics of employment of the bed stock of infectious profile SHCDH (Fig. 1), the dynamics of laboratory tests (PCR test) (Fig. 2), the structure of the codes of final pathological diagnoses according to ICD-10 (Fig. 3)

In the study framework, the authors analyzed the statistical indicators of morbidity, mortality, and recovery. The study object was the population of Shostka and Shostka district. Figure 1 demonstrates the dynamics of bed occupancy at the infectious department of SHCDH. On the other hand, Figure 2 shows the dynamics of laboratory tests (PCR test), while Figure 3 – the structure of the codes of final pathological diagnoses according to ICD-10.

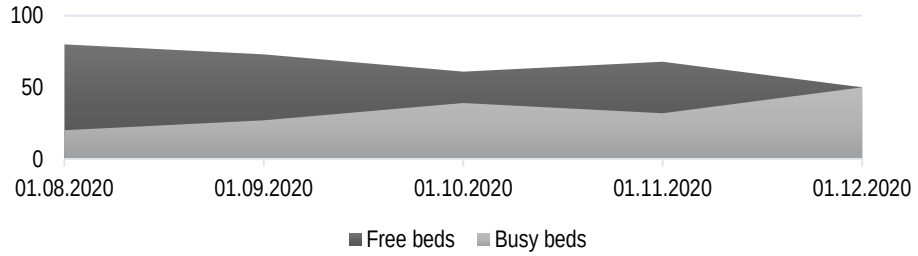

Figure 1. Dynamics of bed occupancy at the infectious department of SHCDH for patients with **infectious disease including COVID**-2019

Sources: developed by the authors.

Figure 1 demonstrates that the number of available hospital beds in the SHCDH department of infectious disease decreased from 80% to 40% (including COVID-2019) over the last five months. Accordingly, the share of available hospital beds for patients infected with coronavirus viral infection would be at least 20%. It stands to emphasize that the monitoring number of available hospital beds for patients with suspected COVID-2019, including intensive care in the infectious department, determined several problems as follows: an insufficient number of beds; the presence of objective and subjective inhibitory processes associated with the opening of additional infectious beds; transferring unreliable information on the existing structure of the bed fund of the admission department, equipped following the instructions to provide medical care to patients with coronavirus infection.

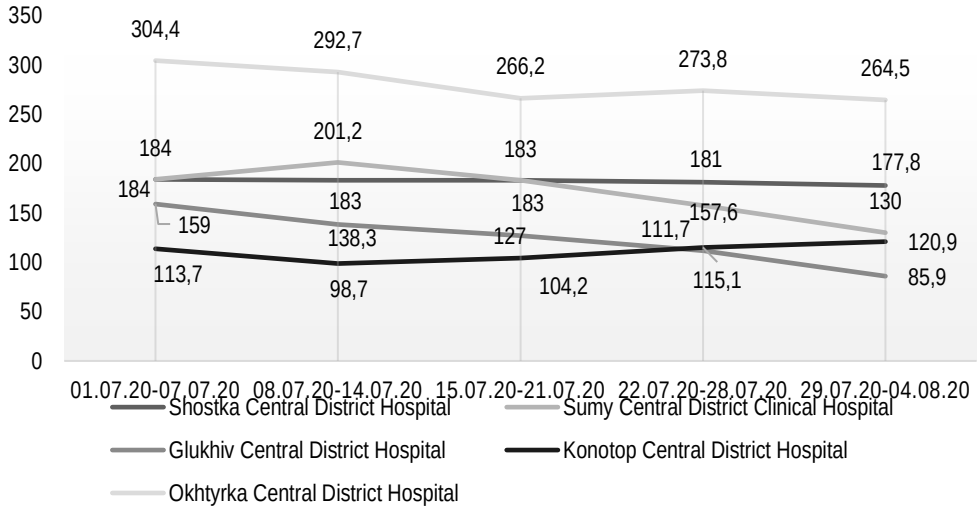

Figure 2. Weekly dynamics of laboratory testing (PCR test)
Sources: developed by the authors.

Figure 2 shows the existence of violations in the regulations of PCR testing. Monitoring the waiting time for the PCR tests' effectiveness revealed a significant increase in the time of laboratory testing biological material for the COVID-19 detection. There was an insufficient number of reagents in the HCF laboratories. Besides, an insufficient percentage of PCR reliability was found during the monitoring of laboratory testing results by biological material for COVID-19. Therefore, in the Shostka district, the number of confirmed samples at the virological laboratory was approximately 40%.

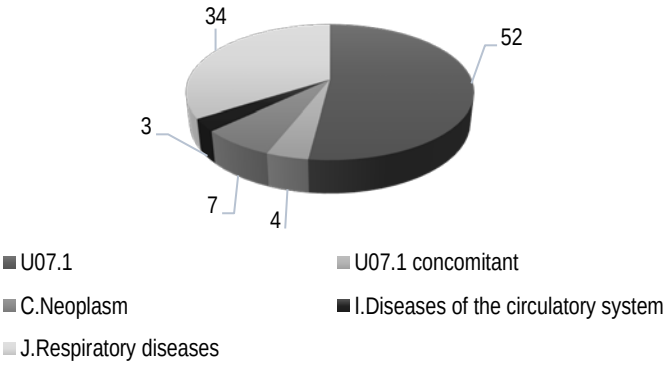

Figure 3. The structure of the codes of final pathological diagnoses according to ICD-10
Sources: developed by the authors.

The study found that 69% of patients died from diseases of the circulatory system, and only 13% from COVID-19. Figure 3 shows that 5% of patients who occupied the coronavirus reprofiled hospital beds were

diagnosed with psychosomatic disorders and external causes of death. Although, it was unacceptable in such HCFs. Therefore, it could be concluded that the main cause of death of patients (52%) on coronavirus reprofiled beds was diagnosed as «new coronavirus infection», while in 3% of cases – concomitant.

Considering the statistical data on coronavirus infection spread among residents of the Sumy region, Shostka, and Shostka district, the management of SHCDH decided to reprofile the non-specialized otolaryngology department further to provide medical care to patients with a confirmed or suspected COVID-19 diagnosis. This project was implemented under the several stages as follows:

I stage: formating the working group;

II stage: an additional survey on statistical indicators;

III stage: elaborating on the activities plan with the subsequent step-by-step task statement with the corresponding terms on performance by responsible persons;

IV stage: practical application a set of measures formed according to the plan and administrative control;

V stage: evaluating the HCF's readiness to provide medical care to patients with confirmed or suspected COVID-19 diagnoses in the admission department.

In turn, it is necessary to consider the epidemic situation that could influence the patient pathways in the reprofiled otolaryngology department. Besides, during the reprofiling of the non-specialized department for admission (inpatient) for patients with suspected coronavirus infection, cooperation with the State Service of Ukraine for Food Safety and Consumer Protection was ensured between groups of specialists involved in reprofiling activities. Besides, it was provided the operational control of implementing the action plan.

Table 1. SMART goal-setting under the purpose to reprofile the otolaryngology department of SHCDH for patients with COVID-19

Title	Content
S (Specific)	Specific: Reprofile specialized hospital for COVID-19
M (Measurable)	Measurable: Prepare and provide 58 hospital beds for patients with COVID-19
A (Achievable)	Achievable: Mobilize all human, technical, organizational resources
R (Relevant)	Relevant: Provides patients with hospital beds
T (Time-bound)	Time-bound: Reprofile the hospitals for 5 days

Sources: developed by the authors.

During the experiment, the SHCDH management was divided into five operational groups such as 1) medical; 2) personnel; 3) information and reporting; 4) economic and financial; 5) business and administrative. The groups worked closely together under formed directions. For preventing the SARS-CoV-2 spread, the interaction between groups was provided with videoconferencing, e-mail, radio, and telephone.

Under the mentioned above plan, the working group members developed an actions algorithm of medical workers if the patient enters the admission department of the reprofiled otolaryngology department with suspected coronavirus infection or the relevant consumer asks for medical services.

The development of the above algorithm of actions covered the notification system, which included a list of operational actions of both main and medical augmentation personnel indicating their mobile phone numbers for quick response.

Besides, it was important to determine the entry points of medical services consumers and medical staff to the territory of the infectious and reprofiled otolaryngology department and vehicle crossing point. Since the urgent need to organize checkpoints at access points, part of the entrances to the above-mentioned updated departments was temporarily closed. Therefore, the internal patient pathways with suspected coronavirus infection and medical staff were adjusted. In turn, the platforms for non-contact

handwash (automated racks with antiseptics), checkpoints with a mandatory medical examination and temperature measurement, and epidemiological anamnesis were mandatory at the access points to the admission department.

The project involved the training of medical staff. All medical workers additionally retrained in epidemiology, clinic, diagnosis, treatment, prevention of infection caused by COVID-19 on the portal of continuing medical education of the Ministry of Health of Ukraine. Courses, training, webinars, online round tables on applying the personal protective equipment, additional training of medical staff on the technique of taking biological material on CARS-CoV-2, and compliance with safety requirements when working with pathogenic biological agents of the II pathogenicity group.

It stands to note that the priorities change in the otolaryngology department for combatting coronavirus infection required the development and subsequent introduction of a special operation mode of structural units and the ability to transmit information continuously vertically horizontally and delivering it to each medical worker.

According to the project, the reprofiling resulted in forming a new admission department for patients with suspected coronavirus infection. Then, 55 beds based were allocated in on otolaryngology department of SHCDH (13 of them in the intensive cure unit). The reprofiling was on 3 November 2020. In turn, patients' reception started on 6 November 2020. During the work of the admission department, 114 patients were recorded. Herewith, 102 (93.4%) of patients received treatment in the reprofiled inpatient otolaryngology department. Notably, 72 (67.2%) patients were older than 50 years in the patient age structure. The mortality level of treated patients was 4.3% (20 deaths, including 14 with confirmed PCR test for COVID-19).

According to the chosen concept, all operational groups completed their tasks on time. During the next five days after approving the reprofiling plan, active measures were taken to introduce the project items gradually. The appropriate administrative measures were completed due to two main factors such as:

– close intra- and interdepartmental interaction and using modern SMART goal setting management strategy;

– effective measures for intra- and interdepartmental interaction to provide HCF with staff, methodological, logistical support. In turn, it allowed focusing on full retraining as soon as possible under the HCF minimum standard in treating COVID-19 patients.

It stands to mention that no serious disease had been registered among the medical staff in providing medical care to COVID-19 patients due to the integrated HCF approach in task solving.

For ensuring the HCF operation effectiveness in providing secondary care during the pandemic, it is necessary to find the leverages to manage risks. The risk management process involves a list of alternative solutions according to the risk assessment results. If necessary, the choice is followed by subsequent implementation of relevant system management tools (control).

Administrative and organizational risks are associated with introducing restrictive quarantine measures at the national level. In turn, it directly affects the introduced reformed mechanism of secondary health care.

Under the quarantine conditions caused by the COVID-19 pandemic, the activities of secondary HCFs are aimed at:

– meeting the needs of medical care for COVID-19 patients with mild disease progression;
– patients (except COVID-19 diseased) in need of emergency medical care;
– examining children and pregnant women;
– implementing planned immunization measures;
– timely providing medicines to patients with chronic diseases (diabetes, circulatory and respiratory system diseases, mental disorders, etc.);
– informational and educational work;

– communication and exchange of relevant information with other HCF and different social institutions remotely.

The legal and regulatory risks are embodied in several statutory wording of the Ministry of Health of Ukraine on the organization of medical care for COVID-19 patients, changes in treatment protocols, algorithms, and clinical patient pathway (On the Concept of Healthcare Development of Ukraine, 2000; Korvetskiy, 2011). Besides, the operational, technological, and personnel risks are realized. For complying with the repeatedly changing regulatory requirements, there is a need to constantly monitor these documents and appropriate changing the activities of primary healthcare facilities with implementing new standards, protocols, clinical routes of patients with the subsequent review. Furthermore, there was a need to train staff and implement the appropriate organizational technologies to ensure epidemic safety, strengthen infection control measures, improve software and hardware resources and information technology (On the Concept of Healthcare Development of Ukraine, 2000).

Financial and economic risks occurred while introducing the second wave of healthcare reform (on 2 April 2020). Later the risks could affect the interactions system of primary and secondary levels, cause the undesirable continuity and timeliness of medical care to patients in need of a certain specialized or inpatient care.

The mentioned above risk examples require deeper evaluation in each secondary HCF's conditions. It would improve the existing approaches of risk management systems according to the quarantine restrictions and ongoing epidemic. From a constructive perspective, the measures in the health care system open opportunities for reviewing and bring into compliance with external challenges of the risk management system of the secondary HCF (Korvetskiy, 2011).

Considering the world experience and the list of international recommendations, the process of further improvement of the existing risk management system in the secondary HCF should include several key factors. The first is to strengthen the HCF management by introducing a qualified functionally oriented structure with the head. Thus, it is considered to be a kind of headquarters for HCF management under COVID-2019. The staff would include the administrative staff, line and functional managers in the main activity areas to coordinate work and increase efficiency.

It stands to mention that the leading areas of the command center under COVID-19 conditions are examinating the epidemic regulatory framework, assessing the actual activities of the HCF following legal documents, drafting decree and orders to address shortcomings for further development, monitoring the implementation of orders and management notice.

The command center must assess the spare capacities of the secondary HCF for medical support of suspected COVID-19 patients. It means developing routes for transporting patients, establishing communication with patients, maintaining individual records, providing counseling, appropriate hospitalization. If necessary, follow-up after discharge from the hospital and/or completion of outpatient treatment could be provided.

Besides, it is necessary to evaluate the possibilities of reliable communications with emergency medical care, laboratory services, hospitals for treating COVID-19 patients. In turn, the existing options of providing medical care to COVID-19 patients should be brought in line with following the standards and protocols concerning primary HCFs, with the development of a local normative act («Some issues of establishing reception departments in health care support facilities in hospital districts», 2020).

The next step involved developing an effective prevention and infection control strategy to minimize the further risk of the COVID-19 spread among potential patients, staff, and other visitors to the primary HCF. Herewith, the strategy should cover several directions as follows:

– information and education: informing and educating consumers of medical services and visitors about the mandatory rules of respiratory hygiene, hand hygiene, social distance; medical workers – standard measures of preventing healthcare-associated infections (Medvedovska, 2020), rules of

dressing, undressing, and disposal) / disinfection (where possible) of personal protective equipment (Fundamentals of the legislation on health care of Ukraine, 1992); control over compliance with the requirements);

– resource: providing the HCF with means for remote thermometry; providing employees with antiseptics and personal protective equipment; installation of sanitizers for visitors; ensuring aeration of premises, disinfection of surfaces and equipment; control of stocks and quality of purchased goods and their logistics;

– system of sorting consumers of medical services (visitors), early detection, and isolation of patients with probable infection with COVID-19. This mechanism's effectiveness is achieved by developing the sorting point system, scanning the body temperature of visitors to identify persons with symptoms of URTI, and isolating people with probable COVID-19 symptoms to a separate box until further transportation to the infectious department.

Improving human resource management approaches is a separate line in developing an effective risk management mechanism. This line rests on reviewing professional staff and position responsibility; assessing the need for additional professionals involvement; clarifying personal contact information; ensuring quality communication and access to accurate and relevant information for staff; training on key issues concerning professional activities in a pandemic; staff rotation aimed to replace the psychologically stressful tasks to more loyal conditions; using a partnership system; introducing flexible employees work schedule; ensuring access to psychological services and emergency psychological care.

An essential component of risk management is the quick mutual information exchange on available COVID-19 statistics between the relevant parties. Following the task, the secondary HCF should strengthen the system of epidemiological monitoring and control, providing the process of isolation and notification according to the emergency protocol, analyzing laboratory and epidemiological indicators, improving communication systems for quality information exchange between the head of the secondary HCF and command staff members, line managers, staff, secondary HCF and higher authorities.

During the COVID-19 pandemic, the administrative organizational, legal and regulatory, financial and economic, operational and technological, and personnel risks were realized in the secondary HCF (WHO, 2020a,b,c). Besides, there is an urgent need to revive the risk management system in secondary HCF. It is advisable to focus on reviewing outdated approaches to risk management due to the monthly deterioration of the epidemic situation.

Therefore, this study presents some approaches to improve the risk management system of secondary HCF under the COVID-2019 pandemic as follows:

– strengthening the HCF management by the additional control staff unit (a specialized functional structure) under COVID-19 pandemic;

– development with the gradual settlement of effective strategic measures for epidemic monitoring, prevention, and infection control;

– regular updating the information on existing risks to accelerate the exchange between all stakeholders;

– revising personnel policy and staffing in the secondary HCF.

It stands to mention that Resolution of the Cabinet of Ministers of Ukraine as of 8 July 2020 №612 «On some issues of establishing reception departments in healthcare support facilities in hospital districts» endorse the terms of financing projects for constructing reception facilities (reconstruction, capital repairs) of health care support facilities in hospital districts. Besides, following the mentioned above resolution, it was approved the «Procedure and conditions for granting subventions from the state budget to local budgets to implement the projects of reconstruction and capital repairs of reception offices of health care facilities HCFs in hospital districts» (Resolution №612, 2020). The procedure and conditions determine the mechanism for granting and using subventions to implement the reconstruction and capital repairs

projects of reception offices of health care facilities HCFs in hospital districts at the expense of the COVID-19 Acute Respiratory Disease Control Fund. It could be assumed that the adoption of the above documents would provide additional opportunities for the timely response of health professionals to the COVID-19 threat and improve the management of medical services in preventing the spread of new coronavirus infection in several areas as follows:

– monitoring the medical care quality for COVID-19 patients in specialized hospitals and organizing a simplified procedure for official registration of medical products, test systems, and drugs required for treating and diagnosing the acute respiratory COVID-2019 disease;

– the correct organizational decisions, clarity and agility, coordinated interaction with other departments would stabilize a difficult epidemiological situation at the national level.

It could be mentioned that a total of 210 admission offices were planned to be reconstructed and overhauled. Moreover, the «Large Construction» program of the President of Ukraine includes the execution of works on these objects. The Ministry for Communities and Territories Development of Ukraine tested the readiness of support hospitals to start. Besides, nowadays, it controls the timing and construction work quality under this program. It is supposed that 100% of the admission departments would meet modern equipment requirements and fill with medical equipment, agreed by the Ministry of Health of Ukraine. Before running the program, the total area for building modern admission offices was 77,286 square meters, while on completing – plan to increase to 130,563 square meters. Therefore, for the further equipping admission departments in support hospitals, in particular, HCF designated for admission of COVID-19 patients, it is necessary to fund 1 billion 680 million UAH for the fight against acute respiratory disease COVID-19.

Following the «Large Construction» program of the President of Ukraine, 56 million UAH is allocated to the Sumy region. In turn, the above program provides the SHCDH with 7-7.5 million UAH for its reconstruction. The reconstruction of the first floor should be reconstructed into the additional admission department. It would be properly equipped to provide a list of emergency medical care to patients with suspected COVID-2019.

Until October 2020, the SHCDH had had one admission department. The COVID-19 pandemic had great pressure on the admission department. Initially, one premise could not accommodate patients with COVID-2019 and other diagnoses. Therefore, the otolaryngology department was reprofiled into the admission department in October. Moreover, the infectious department was additionally loaded since the complicated epidemic situation in Ukraine got worse every week.

Notably, it was planned to equip the resuscitation and small operating rooms into the additional admission department. As a result, it provides the possibility to serve the COVID-19 patients in a separate department and hospitalize them to the additionally equipped isolated box with subsequent testing and correct diagnosis.

Therefore, designing a separate admission department for patients with suspected COVID-19 would provide several opportunities such as:

– accelerated registration;

– ensuring the timely receipt of drugs and test systems to HCFs;

– applicating the exclusive pharmacovigilance procedure concerning drugs and medical devices in treating COVID-19 with follow-up control by the State Service of Ukraine for Food Safety and Consumer Protection;

– ensuring the epidemiological safety of the environment;

– organizing the care for affected patients who require isolation (assessment of staff knowledge on the algorithm of temporal patient isolation and home confinement (self-isolation);

– organizing work of receiving and inspection boxes and/or filter boxes, mobile medical team, and permit employees to work in the COVID-19 conditions.

Except the repairing the admission departments in the support hospitals, the «Large Construction» program suggests filling HCFs with modern equipment under unified standards to provide people with quality medical services. For instance, the SHCDH X-ray office is reprofiling into a computer tomography unit. Thus, computer tomography provides additional essential aid during the COVID-19 pandemic.

Following the Law of Ukraine as of 14 September 2020 № 4000 «On the State Budget of Ukraine for 2021», this study suggests the recommendations concerning the operation of the bundled health package under the COVID-2019 pandemic, as follows:

– directing the subvention remaining to the individual needs of particular HCF;
– increasing the medical salaries at the expense of the COVID-19 Acute Respiratory Disease Control Fund;
– developing and implementing targeted budgetary programs to provide medical workers with the proper financial support of personal protective equipment, ensure the readiness of primary and secondary HCFs to respond to the possibility of a pandemic, hospitalize sick patients.

Conclusions. Due to the worsening pandemic and the lack of extra beds in the infectious department, SHCDH reprofiled the otolaryngology department into the admission department for patients with a confirmed diagnosis of coronavirus infection. For the experiment, the management staff of the SHCDH was divided into five operational groups such as 1) medical; 2) personnel; 3) information and reporting; 4) economic and financial; 5) business and administrative. The authors evaluated the updated management system effectiveness in providing medical care by the admission department. The findings showed that 55 hospitals beds were located in the otolaryngology department (13 of them resuscitation). Based on the existing domestic and foreign experience, the study provides recommendations to improve the management system for providing medical services by the admission department during the COVID-2019 pandemic. Since the COVID-19 pandemic is still ongoing and difficult to predict in the future, it is necessary to improve the management of HCFs, especially in those departments that primarily receive patients.

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Удосконалення надання медичних послуг приймальним відділенням медичного закладу вторинної ланки в умовах протидії епідемії коронавірусу

Пандемія COVID-19 стала не тільки випробуванням на міцність для української системи охорони здоров'я в цілому, а й дала потужний імпульс до вдосконалення заходів із запровадження другого етапу медичної реформи. З метою запобігання поширенню гострої респіраторної хвороби COVID-2019, спричиненою поширенням коронавірусу SARS-CoV-2 був мобілізований весь наявний ресурсно-кадровий потенціал: за обмежений відрізок часу перед керівництвом держави постала задача із розробки та подальшго запровадження переліку масштабних інфраструктурних та кадрових перетворень. У статті висвітлено поняття ефективності надання медичних послуг приймальним відділенням медзакладу вторинної ланки в умовах протидії епідемії коронавірусу на основі удосконалення менеджменту медичними закладами. Метою статті є визначення шляхів удосконалення надання медпослуг приймальним відділенням медзакладу вторинної ланки в умовах протидії епідемії коронавірусу. Дослідження проводилось на реальних даних Шосткінської Центральної районної лікарні, м. Шостка.

У результаті проведеного дослідження з'ясовано сучасні науково-теоретичні погляди на епідеміологію, діагностику та лікування гострої респіраторної хвороби COVID-2019, спричиненою поширенням коронавірусу SARS-CoV-2. Проаналізовано вітчизняну та світову практику функціонування медичного менеджменту в період пандемії COVID-2019. Сформовано оцінку готовності та надання медичної допомоги приймальним відділенням медзакладу вторинної ланки в осередку інфікування SARS-CoV-2. Досліджено показники ефективності якості надання медичної допомоги приймальним відділенням медзакладу вторинної ланки в умовах протидії епідемії коронавірусу. Дано оцінку ефективності оновленої системи менеджменту з надання медичної допомоги приймальним відділенням медзакладу вторинної ланки Сумської області (ЦРЛ м. Шостка). Розроблено рекомендації з удосконалення системних засобів удосконалення менеджменту надання медпослуг приймальним відділенням медзакладу вторинної ланки в умовах пандемії COVID-2019.

Ключові слова: COVID-2019, вторинна ланка медичної системи, медична реформа, медичний заклад, менеджмент надання медичної допомоги, приймальне відділення.