SIX BIG HEALTH TECH IDEAS THAT WILL CHANGE MEDICINE IN 2013

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Artificial intelligence. Siri and IBM's Watson are starting to be applied to medical questions. They'll assist with diagnostics and decision support for both patients and clinicians. Through the cloud, any device will be able to access powerful medical AI. For example, an X-ray gun in remote Africa could send shots to the cloud where an artificial intelligence augmented physician could analyze them. Pap smears and some mammograms are already read with some AI or elements of pattern recognition. This has the potential to disinter mediate some fields of medicine like dermatology which is a pattern based field.

Big Data. We're gaining the ability to get more and more data at lower and lower price points. The primary example is the human genome and genomic sequencing. It cost a billion dollars or more 10 years ago to get a complete human sequence. However, the cost and speed of getting that data has dropped faster than Moore's law to the point where it's less than $5,000 when ordered online. From 23and Me you can now get a cheap SNP test, and it has a pilot program for $999 in whole.

3D Printing. 3D printing has been around for a while but now it's being applied to medicine in ways such as being able to scan the remaining leg of a patient that's missing one from an accident. It can then build a prosthetic leg with skin and size that matches. 3D printing is integrating with the fast-moving world of stem cells and regenerative medicine with 3D ink being replaced by stem cells. In the future we'll probably use 3D printing and stem cells to make libraries of replacement parts. It will start with simple tissues and eventually maybe we'll be printing organs.

Social Health Network. Social networks have the ability to change our behavior. When you wireless weight scale shares metrics with your friends, you get praised for success and pressured if you're not maintaining your diet. Social networks are also quite powerful

for tracking and predicting disease. James Fowler, co-author of the book Connected is now working with Facebook to look at health data. Not surprisingly, the more friends you have, the earlier in the flu season you'll get influenza. This could help predict when you'll get the flu and let you take steps to avoid it.

Communication With Doctors. New communication platforms similar to a Skype or FaceTime will help you communicate differently with your clinician. Many of these things are basically already here. The challenge is often not the technology but the regulatory and reimbursement markets around them. If you're going to be talking with your clinician on your iPhone you may need to do that in a HIPAA privacy protected way. The physician is also going to want to be paid for that in some way. They're not going to want to get all your data every time you have a hiccup or look at your iPhone pictures of your rash unless there's a way to get paid.

Mobile. The ability to have your phone tie to your healthcare record and track medical metrics will have vast repercussions. Though some aren't cleared for sale in US yet, devices like the Alivecor electrocardiogram can monitor your heart in realtime, send the data to the cloud, and allow your cardiologist to look at it instantly. Other devices are turning phones into otoscopes for looking in your ears, or glucometers for monitoring blood sugar. Quantified self-devices like the Fitbit, Jawbone Up, and more medically themed devices will take what you used to do in a clinic or hospital and bring it home. This will allow therapies to be tuned much more effectively than scribbling data on a piece of paper and bringing it in to your doctor months later.