50000 feet up

If you are an avid follower of the advancement of health informatics, you have undoubtedly noticed the buzzing excitement at the shear immensity of the task at hand. At this stage, we’re only “getting the lay of the land”, so to speak, as we determine what our future e-health infrastructure should look like as we gear up for the single largest IT reform in history. While we in the health informatics community sort out the acronyms we will be using to realize this task, I’d like to stop for a minute and talk about what a brave new world with a global e-health infrastructure could look like.

Let’s follow Jane Smith during a regular day in the future:

Jane wakes up early. It’s going to be a busy day. She has an appointment with her doctor in the afternoon to get some vaccinations against Typhoid and Hepatitis A as she will be flying to India in a couple of week. But first she has to get ready for her morning run. She will meet with her personal trainer for a 1½-hour high impact cardio workout before work.

1 in 20 have diabetes in the U.S. and Jane is one of them. As part of her routine, she takes her first shot in the morning using her DiaVox 2000. The DiaVox is a telemetry device that takes her blood and uploads all the sample data to her RHIO[[1]](#footnote-0). The DiaVox then computes and administers the insulin shot based on the results of the blood sample. Meanwhile, the RHIO saves the data to her profile and makes parts of it available for data mining for researchers working on more efficient treatments and others who run geographical analyses on the impact the environment has on Type I diabetics. The RHIO gives scientists and researchers access to millions of samples that used to be numbered in the 1000s.

Jane meets her personal trainer and they go for a 45-minute run followed by 45 minutes of yoga. Jane’s monitor tracks her activities throughout the day and alerts her if she is working out too much. Diabetics need to be careful when exercising and want to avoid excessive strain on the body. Her monitor uploads the details of her workout to her RHIO when she gets home and compares it with her previous exercises and those of others and recommends a diet that fits her level of activity.

During lunch, Jane has an appointment with her doctor. She needs to get two vaccination shots for her trip to India. Her doctor retrieves her medical record from the RHIO and is able to get a complete overview of her health including her own private entries, past visits to all the doctors she has visited before [in the world] and notes from her acupuncturist and homeopath. Based on her past blood samples and that of others with a similar gene code, there is a high likelihood that she will experience adverse reactions to the most common Typhoid vaccine and suggest she use a different one. At the end of her appointment her doctor enters in her new vaccination records into the system; making it available to everyone with access to her records.

Let’s quickly fast forward to when Jane is in India.

Jane caught a nasty stomach virus while she was trying out the local cuisine. She stops by the local hospital to ask for advice. The doctor in India has access to all the same information about Jane as Jane’s own doctor back home. He was going to recommend Gatorade and dry crackers, but since Jane is a diabetic, he puts her on a plasma drip overnight without question as the system indicates that her travel insurance covers it.

This was a simple example of how seamless medical information could flow and benefit all in the process. Thanks to the system, Jane gets the best treatment medicine can offer based on her personal data and that of millions of others. Jane also contributes to the system as scientists have anonymous access to her data and can run 1000s of different tests with data taken from any region of the world they want. That information can help track down outbreaks of Ebola and predict the probability of future outbreaks. It can run vast simulations on the human populace to help improve lives. The opportunities are endless.

Next time I will cover a slightly touchier subject about how health insurance will play its part and why a hybrid socialized model of healthcare can be a really good solution because it fits the system.

Diabetes/Telemetry

PHR

Check-up at the hospital

Hospital abroad

Data mining

Insurance company

1. Regional Health Information Organization [↑](#footnote-ref-0)