

Thank you for the opportunity to be here today. My name is John Schrom, and I am an epidemiologist from Minneapolis. I have spent over a decade working in various aspects of health care: from direct patient care; to serving in a policy role for municipal, county, and state governments; to providing epidemiologic and analytic support for hospitals and clinics.

However, about a year ago, I traded the khakis and polo shirts in for hoodies and jeans. That is, I made the leap from hospital cubicle to Silicon Valley start-up. I'm currently a Fellow at Rock Health, a health technology incubator in San Francisco, where I'm working on building a medical informatics startup called Epi.md.

The work that you are doing is incredibly important. Defining the methods for storing, exchanging, and utilizing health information is critical for improving quality and lowering costs. However, without the appropriate use of technology, these goals are simply not possible.

I am in a unique position: I have seen the dark corners where data live in a hospital. I have also tried to work from the outside to shed light on those data. It's really hard and, perhaps surprisingly, it's not made any easier by the epic-ly large health care companies that exist today.

From my experiences, there are three key areas to improving how we handle data, the processes that we use to translate data into clinical action, and how we leverage our electronic health records along the way.

First, focus on developing, documenting, and opening standards. While I feel and understand the attachment to HL7, it costs over \$1,000 to simply have access to it. That may not seem like much to companies with revenue in the hundreds of millions or billions. But, at Rock Health, I am given a \$20,000 grant to start a company. That money must pay for staff, technology, and business expenses. So, while we are working on issues that could benefit from the use of such a standard, I simply don't have the resources to both start the company and pay for access.

Additionally, documentation of available standards and ontologies is often difficult to understand. I was at a happy hour with some other Rock Health fellows recently. One of my friends was describing her past couple of weeks, and how she had been working diligently on building tables relating different clinical concepts (e.g., type 1 diabetes is a type of diabetes, etc.). When I explained what SNOMED-CT was, she became quite frustrated. That was exactly what she was looking for, but just didn't know that it existed.

By contrast, there's a telephony company in San Francisco called Twilio. They provide text messaging and phone services for developers via a really simple web interface. Part of their success results from their crystal clear documentation, code examples and libraries (often submitted by users), and "developer evangelists" who answer questions and provide support for their platform.

Health care needs to have a similar focus on improving documentation. We all want to speak the same language, but there are varying levels of technical and clinical understanding that impedes the achievement of this goal. Any work that can be done to help developers understand and utilize existing standards and ontologies will help to ensure that efforts in the young Silicon Valley health technology community are not be wasted.

Second, require all EHRs to have a standard API (Application Programming Interface) that is accessible by both patients and clinicians. In the current system, data are locked by proprietary (and often nebulous) data structures, forcing hospitals to use the EHR's limited analytic functionality, look for limited 3<sup>rd</sup> party solutions, or give up entirely.

Further, there's an inherent problem with quality measures and clinical decision support systems: they create more work for already overworked clinicians. By making data easily accessible in the language commonly understood by developers (e.g., RESTful APIs), the health care industry can begin to leverage the bright and innovative Silicon Valley minds to solve these problems. There exists an incredible opportunity to create technology solutions that leverage EHRs to help scale primary care. That can only begin to happen when data are easily accessible.

Finally, be ready to start accepting data directly from patients. The average 24 year old will spend more time on Facebook in the next week than with a physician in the next 20 years. So, as you can imagine, there is a digital data trail of where patients are going, how they're feeling, whom they're interacting with, what they're eating, and pretty much anything else. There's significant clinical "signal" that can be derived from those data, but only if it's accessible and linked to the patient.

So, what if you could develop quality measures that target children who live or visit homes older than 1950 for lead screening, cardiovascular patients who live near highways for increased follow-up, or frequent bar patrons for alcohol assessments and STD screenings. All of these ideas are supported by public health studies, but have only recently become possible, thanks to the increased adoption of EHRs, Todd Park's open data initiatives, and the maturation of social media.

We're at an exciting point in the development of our health care system. Measures are an integral component of this development. However, with the right planning and forethought, we can use this as an opportunity to develop and implement the standards that will drive health technology for decades to come.

Thank you again for the opportunity to be here today. I will gladly stand for questions, and look forward to the continued discussion around this topic.