July 29, 2014

Have you heard of “big data”? It’s a term used to describe the collection and analysis of massive amounts of information, including data gathered from various networks, devices, and the Internet. With increasing amounts of information now accessible, many see potential for big data to boost healthcare quality while lowering costs. In fact, 95 percent of healthcare CEOs, more than in any other industry, are currently exploring better ways of using and managing big data.

The scope of available healthcare data has expanded rapidly. Data can now be gathered from electronic medical records, digitized X-rays and other images, medical devices including wireless and wearable devices such as Fitbit, and even social media. As patients, we can benefit when predictive models using big data better inform our diagnoses, predict which treatments and medical regiments work best with our unique genetic traits, nudge us when we should make more healthful choices, and enhance our patient experience. Big data can also benefit the entire healthcare system when it reveals opportunities to eliminate duplicative or unnecessary services and helps reduce the number of avoidable Emergency Department (ED) visits and hospital readmissions.

Use of Big Data in Healthcare

Featured Commentary

The health care industry is grappling with the challenges of working with and analyzing large, complex, diverse data sets. Click here to learn more about the Use of Big Data by Blue Cross and Blue Shield of North Carolina.

Featured Report

The 17th Annual Global CEO Survey-Key findings in the Healthcare industry courtesy of PwC.
Monitoring What We Buy

Data brokers—the for-profit companies that mine huge sources of data—are pulling data from credit card purchases and store loyalty cards to track consumer purchasing habits. Last month, Carolinas HealthCare System announced that they are using the consumer data of two million people to identify high-risk patients and intervene before they get sick. These data include the kinds of food we buy, our leisure activities and whether we drink alcohol or smoke. BCBSNC models are using algorithms to find high-risk patients by incorporating patient claims, demographic, purchasing preference and other data to assess their member’s health risks. Would you buy that pack of cigarettes if you knew your cardiologist was watching?

Scenario: Big Data And Asthma Patients

Imagine a health system that manages a large number of asthma patients. The health system wants to ensure these patients avoid adverse health episodes, for sake of patient wellbeing and to control costs. Under the Affordable Care Act, providers can be rewarded or fined based on health outcomes and patient satisfaction.

In this scenario, the health system’s big data model assigns a risk score to each asthma patient, based on whether the patient lives in an area with high particulate matter, has recently purchased cigarettes or filled a prescription for asthma medication, and other factors. If the predictive model scores a patient as high-risk for a serious asthmatic episode, the system then passes this information to a healthcare provider, who intervenes.

Going Too Far?
Although typical doctor-patient confidentiality applies in the scenario above, some patients may be uncomfortable that a health system is accessing their personal consumer purchasing data. The practice could strain the doctor-patient relationship.

Currently, data brokers are not yet disclosing itemized purchasing data for individuals, and Carolinas HealthCare System is considering an opt-out mechanism for patients who want to keep their data private. But if health systems like what they see in the results of early modeling efforts, they may renegotiate their contracts with data brokers to get more patient-specific purchasing information.

“The idea is to use big data and predictive models to think about population health and drill down to the individual levels to find someone running into trouble that we can reach out to and try to help out,” said Michael Dulin, chief clinical officer for analytics and outcomes at Carolinas HealthCare System in an article for Bloomberg last month. “The data itself doesn’t tell you the story of the person, you have to use it to find a way to connect with that person.”

My Take

Although I personally applaud efforts to improve population health and support my healthcare provider intervening before I get sick, I become apprehensive when I consider how my data could be used in the future. Could there be a day when I am charged more for my healthcare if I let my gym membership lapse, or if I’ve bought too much junk food? While I don’t see this happening any time soon, don’t be surprised if you see me at the supermarket paying cash for my ice cream and wine.

Sarah Langer
Health Policy Manager
sarah_langer@ncsu.edu