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Richa Khanna

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BIG DATA = BIG BROTHER?

What is Big Data?

How are political candidates, insurers, thieves, and now hospital executives alike?¹ They are all buying big data from brokers.² “Big data” in this context refers to massive amounts of information ranging from a combination of clinical, genetic, social and other data that is collected from multiple sources and interpreted by analytics to provide an overview of trends or patterns.³ Big data not only consists of valuable and personally identifiable information, but also some of the most personal and sensitive information such as consumer lists of people with diabetes, depression, herpes, yeast infections, erectile dysfunction and bed-wetting.⁴

Hospitals are going as far as mining your credit card and loyalty program data in order to forecast how your personal spending habits will affect your health.⁵ Physicians hope to use this data to not only identify patients who are at risk for certain illnesses and thus, likely to be “high-cost”, meaning repeat users of expensive health care services, but also for their own profits.⁶

Implications of Healthcare Reform

Most people have found that they can't even get their doctors to call them back when they have had health problems so why, now, are doctors trying to reach out before they have bigger health issues? Though patients can benefit from consumer data, the financial motivations for this cannot be overlooked.⁷

¹ Melanie Hicken, *Big Data: Looking who's buying your personal information*, CNN MONEY, <http://money.cnn.com/gallery/pf/2014/09/07/big-data-personal-information/3.html> (last visited Sept. 19, 2014).

² *Id.*

³ Michael Leff, *Given Time, 'Big Data' Promises to Transform Patient Care*, <http://www.aafp.org/news/practice-professional-issues/20140827qa-bigdata.html> (last visited Sept. 19, 2014).

⁴ Hicken, *supra* n. 1.

⁵ Pam Baker, *Hospitals Mining Credit Card Data to Predict and Control Patient Behavior*, <http://www.fiercebigdata.com/story/hospitals-mining-credit-card-data-predict-and-control-patient-behavior/2014-07-09> (last visited Feb. 5, 2015).

⁶ *Id.*

⁷ Shannon Pettypiece and Jordan Robertson, *Hospitals Are Mining Patient's Credit Card Data to Predict Who Will Get Sick*, BLOOMBERG BUSINESSWEEK (JULY 3, 2014) <http://www.businessweek.com/articles/2014-07-03/hospitals-are-mining-patients-credit-card-data-to-predict-who-will-get-sick>.

With healthcare reform, specifically the Affordable Care Act (“Act”), healthcare providers are forced to make new strategic decisions regarding the financial and clinical performance of hospitals.⁸ Under this Act, hospital pay is being linked to quality metrics, increasing the incentive to keep patients healthy.⁹ The law is moving away from the traditional fee-for-service model in which hospitals are paid based on the numbers of tests or procedures they perform.¹⁰ Instead, hospitals that have too many patients readmitted too frequently are penalized, while hospitals that meet certain patient quality benchmarks and health outcomes are being rewarded.¹¹ Insurers are following suit and no longer want to pay for hospitals that are simply performing more tests and procedures but rather want to be paying for quality, and are now holding hospitals accountable if patients are too sick or coming to the emergency room too frequently.¹² For example, hospitals are penalized with a reduction of Medicare payments for patients who have been readmitted for heart attacks, heart failures, and pneumonia.¹³

Impact of Big Data

Given these circumstances in addition to limited time and patient loads, physicians now face the difficult task of identifying a patient’s multiple needs in a single visit.¹⁴ This has led to the interest in consumer data. The Carolinas HealthCare System, which runs more than 900 care centers, has already started plugging consumer data on 2 million people into algorithms created to identify high-risk patients so that doctors can intervene before they get sick.¹⁵ Meanwhile, Pennsylvania’s largest system uses household and demographic

⁸ Donna S. Charles, *How hospitals can make big data pay big*, HEALTHCARE IT NEWS (Mar. 14, 2014) <http://www.healthcareitnews.com/news/how-hospitals-can-make-big-data-pay-big>.

⁹ Pettypiece and Robertson, *supra* n. 7.

¹⁰ *Id.*

¹¹ *Id.*

¹² Shannon Pettypiece and Hanri Sreenivasan, *Hospitals turning to data brokers for patient information*, PBS NEWSHOUR (June 29, 2014, 4:02 PM) <http://www.pbs.org/newshour/bb/hospitals-turning-data-brokers-patient-information/>.

¹³ Jordan Rau, *Hospitals Face Pressure to Avert Readmissions*, NY TIMES (Nov. 26, 2012) available at http://www.nytimes.com/2012/11/27/health/hospitals-face-pressure-from-medicare-to-avert-readmissions.html?_r=1&.

¹⁴ Michael Leff, *Given Time, ‘Big Data’ Promises to Transform Patient Care*, <http://www.aafp.org/news/practice-professional-issues/20140827qa-bigdata.html> (last visited Sept. 19, 2014).

¹⁵ Pettypiece and Robertson, *supra* n. 7.

data.¹⁶ Many believe that big data can help anticipate patient needs.¹⁷ Carolinas HealthCare is experimenting with coupling consumer data with medical records to predict a patient's risk of having a heart attack.¹⁸ Big data can certainly be useful for treating healthy patients as well.¹⁹ The hope is that it will be able to predict who's likely to have a health issue later in his/her lifetime.²⁰

This data can also predict risk and identify what habits patients ought to change.²¹ Moreover, it may indicate other types of screenings to perform on a patient comes that doctor may not initially have thought of.²² This additional information allows doctors to paint a bigger picture of a patient's health than just the small glimpse they get during an office visit or through lab results.

A massive amount of data is often, however, a slippery slope. Though big data can provide hospitals with information on patients, there needs to be a way to manage the risk.²³ One major issue at stake is that consumer data collected by data brokers can be "startlingly inaccurate".²⁴ The reality of analyzing data is much more complicated.²⁵ Data is somewhat "dirty" as a result of obsolete, inaccurate, and missing information and healthcare is one of the toughest industries when it comes to big data technology.²⁶

Another concern with big data that critics express is the threat to privacy.²⁷ In addition to the recent breach of 4.5 million medical records from Community Health Systems, the U.S. Department of Health and Human Services has found 944 occurrences affecting about 30.1 million people.²⁸ And

¹⁶ Compare *Id.*; with Shannon Pettypiece and Jordan Robertson, *Your Doctor Knows You're Killing Yourself. The Data Brokers Told Her*, BLOOMBERG (June 26, 2014, 12:35 PM) <http://www.bloomberg.com/news/2014-06-26/hospitals-soon-see-donuts-to-cigarette-charges-for-health.html>.

¹⁷ Michael Leff, *supra* n. 3.

¹⁸ Melanie Hicken, *supra* n. 1.

¹⁹ Michael Leff, *supra* n. 3.

²⁰ *Id.*

²¹ *Id.*

²² *Id.*

²³ *Id.*

²⁴ Melanie Hicken, *supra* n. 1.

²⁵ Verne Kopytoff, *Big data's dirty problem*, FORTUNE (June 30, 2014, 10:58 AM) <http://fortune.com/2014/06/30/big-data-dirty-problem/>.

²⁶ *Id.*

²⁷ Pettypiece and Robertson, *supra* n. 16.

²⁸ Tammy Worth, *How much do IT breaches cost the healthcare industry annually?*, HEALTHCARE DIVE (Aug. 20, 2014) <http://www.healthcarediver.com/news/how-much-do-it-breaches-cost-the-healthcare-industry-annually/299924/> (last visited Sept. 19, 2014).

yet, according to a 2013 survey, only about 69% of organizations have a data breach plan in place.²⁹

Managing Risk

While big data can improve care quality and reduce costs, it should not be at the expense of a patient's privacy. The Centers for Medicare & Medicaid Services (CMS) is now responsible for overseeing improvements in data collection to find better health outcomes for patients, coordinate care, and spend dollars more wisely.³⁰ CMS should also regulate big data and develop capabilities in data analysis, data management, and systems management. Additionally, individual hospitals need to establish governance standards. This does not necessarily mean that retailers should be required to notify consumers when sharing their information with hospitals or requiring "express consent" from consumers. Rather, hospitals should enforce controls to restrict access and maintain confidentiality of that data.³¹ Further, encryption or the changing information in such a way that it is unreadable can provide an additional level of protection. Finally, these hospitals need to have a full disaster recovery/business continuity plan in case of potential disasters.³²

RICHA KHANNA*

²⁹ *Id.*

³⁰ *Press Release: CMS Creates New Chief Data Officer Post*, <http://www.cms.gov/Newsroom/MediaReleaseDatabase/Press-releases/2014-Press-releases-items/2014-11-19.html> (Last visited Feb. 5, 2015).

³¹ Antony Adshead, *Key Steps to Big Data Security in Healthcare*, <http://www.computerweekly.com/podcast/Key-steps-to-big-data-security-in-healthcare> (last visited Feb. 5, 2015).

³² *Id.*

* Candidate, *Emory Corporate Governance and Accountability Review*; J.D. Candidate, Emory University School of Law (2016); B.S. University of Virginia. I would like to thank Elizabeth Henderson for her guidance in selecting the topic for this piece and John Koury for helping me edit and refine my work.