“Big Data” Impact on Healthcare Regulation and Reimbursement

The first two installments of this four part HC Topics Series: “Big Data” discussed the history and evolution of big data in healthcare, and the implications of big data for healthcare privacy and accountability rules within the context of the Healthcare Insurance Portability and Accountability Act (HIPAA) and the Health Information Technology for Economic and Clinical Health Act (HITECH). The current installment will examine the use of, and opportunities for, the use of big data in the healthcare regulatory and reimbursement environment, including federal data initiatives, and use within the context of healthcare reform.

“Big data” has been successfully utilized in many industries to improve efficiency and quality of processes and work. The Obama administration also jumped on the “big data bandwagon”, announcing the funding of the Big Data Research and Development Initiative in partnership with six federal programs in March 2012, funded with over $200 million federal dollars with aims to develop technology needed for big data and adapt them for use in various industries, as well as increasing the workforce with appropriate training to continue developing and utilizing big data.1 In addition, as part of the U.S. National Action Plan, published in September 2011, the U.S. government made big data of its own available for public consumption, including public access to over 390,000 agency data sets on various industries, publicizing compliance data by federal enforcement agencies, and creating data communities for various sectors of American industry to promote innovation, among other uses.2

In comparison to these other industries, the healthcare delivery system has been relatively slow to utilize big data to their benefit. In 2010, the Institute of Medicine (IOM) and the U.S. Department of Health and Human Services (HHS) initiated The Health Data Initiative (HDI), fka the Community Health Data Initiative, with the purpose of making more health data available and user-friendly so it may be employed to better guide efforts in disease prevention, improving and measuring healthcare quality and outcomes.3 Stakeholders of this initiative have gathered each year since the project’s inception to revise, expand, and, facilitate the continued application of big data for healthcare, with the goal of disseminating applications driven by big data that will assist healthcare consumers, providers, and other stakeholders in “health assessment, planning, and action”.4 The data gathered by this initiative is available at HealthData.gov, which was launched by the initiative in February 2013.5

Under the influence of healthcare reform, the healthcare regulatory and reimbursement environments have undergone, and will continue to experience, a multitude of changes. This includes increasing resources dedicated to the detection and prosecution of healthcare fraud and abuse, as well as the implementation of hospital value-based purchasing (VBP) programs and integration of various evaluation metrics into reimbursement determination. Many of these changes under healthcare reform have required the harnessing of big data and stakeholders are struggling to analyze the vast amount of information that has rapidly flooded the healthcare delivery system with advancing technology and electronic use in the delivery of care. With the advent of hospital VBP, the Centers for Medicare and Medicaid services (CMS) and the Health Services Advisory Group recently announced a partnership with GNS Healthcare to use a big data analytics platform; this platform and cloud-based “supercomputing” will analyze the vast amount of data encompassed by VBP and outcome indicators to determine whether the chosen quality indicators have any causal relationship with improved patient outcomes.5 This application could be useful in determining evidenced-based quality and clinical practice improvement metrics that will impact the newly proposed physician reimbursement incentive program.6

In the regulatory realm, there is vast potential for big data utility. It has been estimated that only three to five percent of all healthcare fraud is actually detected; big data analytic techniques can be used to create predictive models of common fraudulent scenarios, useful both for identifying fraud more quickly and informing policy to help engineer better high level barriers to prevent system abuse.8 In 2011, CMS had already begun constructing several algorithms with the intent of targeting providers at high risk for defrauding Medicare.9 Despite this progress, there are many other areas for which big data would be useful in enhancing current regulatory and auditing programs, e.g., improving the Recovery Audit Contractors (RAC) program to prevent claims-based fraud; preventing over-utilization of medical services; or, preventing fraudulent enrollment in Medicare.10

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The opportunities for the utility of big data in healthcare regulatory and reimbursement markets are virtually limitless. With the continuing digitization of healthcare and advancing technology, it is likely that big data analytics will also become more important, not only for the enhancement of regulatory projects and evaluation of reimbursement programs and metrics, but in several levels of healthcare delivery, from informing high level policy-makers, to daily use by providers and consumers. The last installment of this series of articles on big data will explore the potential impact of big data on healthcare stakeholders and the delivery of patient care.

9 Ibid
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