BIG DATA SOLUTIONS

FOR HOSPITALS AND HEALTH CARE

1

DERIVING DATA-DRIVEN INSIGHTS

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Hook: By 2020, the health care industry will have to accommodate approximately 25,000 petabytes of data - a 50 - fold increase above 2012 levels. Read on and find out how Big Data can help hospitals and health care organizations derive actionable, data-driven insights.

The healthcare industry in the U.S. stands at a tipping point in 2014. Between federally mandated health care reforms and rising costs, hospitals and health care organizations must respond proactively to weather these challenges. As a solution, Big Data technologies step forward as a potential enabler of improved patient care, improved clinical outcomes, and lower health care costs over the long term.

THE CHALLENGE TO HEALTH CARE ORGANIZATIONS: DERIVING DATA-DRIVEN INSIGHTS

The amount of data collected by hospitals and health care organizations continues to grow at an unprecedented pace. For instance, approximately 500 petabytes of health care data existed in 2012, but by 2020, the volume of health care data will see an estimated 50-fold increase. In total, the health care industry will have to accommodate approximately 25,000 petabytes of data from a variety of structured and unstructured sources.

From a different perspective on the scope of the challenges hospitals and health care organizations face, the U.S. spent approximately 17% of its gross domestic product on health care in 2009 alone. Today, the rate of health care spend is reportedly slowing, but still, the high cost of health care represents a significant drag on the U.S. economy as a whole. However, Big Data can potentially drive cost savings and improved efficiencies that may revolutionize the analysis and exchange of health care data in the U.S..

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Big Data technologies in the health care industry are critical to the success of the transition to electronic health records. Integrating structured data from electronic health records alongside unstructured data (e.g., clinical notes) is not a viable option with today's technologies. In fact, the traditional paradigm of data collection, storage and analytics is in the midst of a fundamental shift, where Big Data technologies stand poised to provide data-driven insights to the major pain points of hospitals and health care organizations.

IMPROVED PATIENT CARE

Big Data technologies allow hospitals to improve patient care by tailoring services on a more personal level. Today, health care facilities collect vast amounts of medical imaging data. For instance, a single EKG can produce 1,000 data points a second, and analyzing data of this scale using traditional tools no longer makes practical sense. Introducing mobile devices into a large-scale health care IT infrastructure only adds to the problem of handling such an influx of patient-care data.

BIG DATA TECHNOLOGIES ALLOW HOSPITALS TO **IMPROVE PATIENT CARE BY TAILORING SERVICES** ON A MORE PERSONAL LEVEL

As only one specific use case, Big Data technologies may be able to identify epidemiological trends in the spread of hospital-based infections to improve patient safety. By looking at patient-care data from a holistic point of view, health care providers can foster more meaningful collaborations through health- information exchanges among facilities, or internally within a high-volume clinical setting. The benefits to patient outcomes can be significant.

IMPROVED CLINICAL OUTCOMES

Surely, there is a vast amount of waste in the U.S. health care system. The costs in terms of GDP are stark enough to make the case for improving clinical outcomes by implementing Big Data technologies in a hospital setting. By deriving data-driven insights into clinical outcomes, health care organizations can reduce the amount of unnecessary tests and less effective drug prescriptions. Big Data helps hospitals improve outcomes via data-driven decision making, which may reveal ways to lower costs, as well.

IMPROVED PATIENT CARE

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3

LOWERED HEALTH CARE COSTS

One real-world example of improved patient outcomes revolves around consolidating legacy IT systems (some as old as several decades) into a unified Big Data platform. The managed-care consortium Kaiser Permanente implemented a holistic system of electronic health records to speed information exchange across all of its medical facilities. This strategy, even in its early stages, has created efficiencies that would not be possible without a comprehensive technology stack to handle the variety of patient outcome data. In total, Kaiser Permanente was able to reduce office visits by approximately 26%, which now allows the consortium to redirect resources to other priorities such as cost control.

LOWERED HEALTH CARE COSTS

The rising cost of health care is a pivotal force in the U.S. today. As lawmakers continue to adjust the regulatory framework surrounding electronic health records and information exchange, hospitals and health care organizations must leverage these requirements into cost savings. Big Data technologies can lead to cost savings through improved operational efficiencies and opportunities to eliminate waste.

BIG DATA TECHNOLOGIES LEAD TO COST SAVINGS THROUGH IMPROVED OPERATIONAL EFFICIENCIES AND OPPORTUNITIES TO ELIMINATE WASTE

Even the most conservative estimates of the potential cost savings should give hospitals and health care organizations plenty to consider. Streamlined and highly personalized health care services that improve patient care and clinical outcomes can save the health care industry in the U.S. as much as $190 billion by 2020, according to the McKinsey Global Institute. Other findings by McKinsey place the potential cost savings in the range of $300 billion to $450 billion.

Deriving data-driven insights from Big Data technologies enables efficiencies in several domains within the health care industry; improved patient care, improved clinical outcomes, and lowered health care costs are three of the most apparent benefits of implementing Big Data technologies in the health care industry.

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