

BIG DATA IN HEALTHCARE

A look into how 'big data' is reshaping the healthcare industry.

Big data is everywhere. From retail to banking almost all sectors have embraced this revolutionary change in data storage and sharing.



Organizations with above-average performance using customer data and analytics outpace competitors by 2-3x on sales, margins and profits.

Harvard Business Review, March 2015



Eighty-three-percent of companies say that big data is making their existing products and services more profitable.

The Economist Intelligence Unit, April 2014

Traditionally, the healthcare industry has lagged in embracing the use of big data. Why? Part of the problem stems from resistance to change from providers while the other obstacle has to do with HIPAA violations. There is no easy way to share data among different providers, and facilities due to privacy concerns.

However, recently there has been a series of converging trends that is taking the healthcare industry to the tipping point of where big data will play a big role. This ebook takes a look at the demand for big data, the supply of this data at scale, technical innovations in the industry, and market changes catalyzed by the government.

HERE'S WHAT YOU NEED TO KNOW

Demand for big data in healthcare is growing exponentially

"Hospitalizations are very expensive and cost this country a lot of the resources we're using in health care," says Richard Merkin, president and chief executive of Heritage. "Imagine if you could effectively predict who was going to be hospitalized," Dr. Merkin says. "You could reallocate resources to prevent unnecessary hospitalization and put those resources to use for cure rather than care."¹

Healthcare has been one of the slowest industries to adopt changes in data collection and storage, but cost pressures are pushing providers into the industry at an exponential rate. One of the main reasons for this is the shift from cost for service to outcome based reimbursement incentives.

That means providers are getting paid more often for how well their patients respond to treatments rather than simply the services they receive. Since healthcare providers are seeing more incentives for delivering care that works, they are more likely to search for evidence-based treatments on big data networks.

CARE DELIVERY EVOLUTION

Buyers expect greater value, improved quality and better outcomes - at a more affordable cost.

17.6%

of U.S. GDP consumed by healthcare spending

4x more

people over 60 will be unable to care for themselves by 2050²

FOCUS ON THE INDIVIDUAL

Volumes of data creates an opportunity for deeper insight, earlier intervention and engagement.

50 million

individuals entering health insurance market by 2017

1 billion

health related apps will be downloaded by the year 2016²

BUSINESS MODEL CONVERGENCE

Demand to connect healthcare and social services is driving information of new partnerships.

1/2 trillion

dollars in avoidable costs with medication adherence

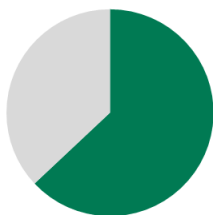
9 million

of 36 million deaths attributed to preventable NCDs*
*non-communicable disease²

"Companies have to do more with less," says Eric Waller, chief marketing and strategy officer for HMA. "We're being incentivized as an industry to improve clinical care and increase customer satisfaction and improve margins with lower reimbursements. It's driving people to be much more interested in the use of analytics."¹

The knowledge pool is expanding

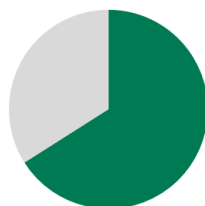
The increase in demand for healthcare data has, thankfully, been accompanied by a corresponding rise in the supply. For example, many companies who offer electronic medical records allow their customers to search benchmark and reference information across their entire database. In March 2017, 67% of all providers reported using an EHR, a 1% increase over September 2016.² As of 2015, about 9 in 10 (87%) of office based physicians had adopted an electronic health record (EHR) and it represents a 4% increase from the year prior.² Since 2008, office based physician adoption of an EHR has nearly doubled, from 42% to 87%.



IN 2015

63%

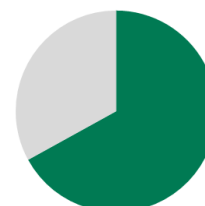
EHR Adoption Rate²



IN 2016

66%

EHR Adoption Rate²



IN 2017

67%

EHR Adoption Rate²

1. Journal Reports: Health Care - Numbers, Numbers and More Numbers - Health-care players are finding that crunching the numbers can pay off in both better care and lower costs, The Wall Street Journal

2. Practice Fusion. Available at <https://www.practicefusion.com/blog/ehr-adoption-rates/>

Research doubles every five years," says Lori Beer, executive vice president of enterprise business services at WellPoint. "How does a physician keep up with that?"

Technology is getting better

Obstacles to electronic sharing that prevented the adoption of big data in healthcare in the past are now being eliminated with advanced technology. One of the biggest barriers to come down is high costs.

Cheaper and better CPUs, bandwidth, and storage space now allow large institutions to share tons of data without breaking provider budgets. Advanced tech also enables automated systems to share data without violating patient privacy according to HIPAA.

BETTER HEALTHCARE OUTCOMES IS THE ULTIMATE GOAL

Impact on the healthcare industry

As healthcare providers switch over to big data, patients are finally benefiting from values in care delivery that are actually directed at results. The overall goal in this transformation, according to the Business Technology Office at the Center for US Health System Reform, is to improve five value pathways: right living, right care, right provider, right value, and right innovation. As new information becomes available throughout the the entire healthcare system, the specifics of each value will change.

Innovations currently taking place

Many healthcare providers are already in the process of making big changes to patient care through their use of interconnected information networks. A few examples include:

- A reduction in office visits by more than 26 percent when Kaiser Permanente fully implemented the HealthConnect system at their facilities.
- A case where a pharmaceutical company successfully countered its exclusion from the German formulary by using data from the IMS Health's Disease Analyzer to prove its drug has a positive effect.
- Improvements in prevention and care coordination are being made through a big data arrangement between Blue Shield of California and Nant Health.

Improve the five value pathways:



Right Living



Right Care



Right Provider



Right Value



Right Innovation

Impact on the healthcare industry

While the potential benefit for patients is huge in big data exchange, there are some parties that may attempt to only improve their own profits without consideration for outcomes. For example, certain manufacturers of medical equipment could aggressively use the vast amount of information from data networks to market the use of their products even when they're not needed. Significant changes to the overall healthcare system will need to be made to mitigate these potential abuses and support value pathways.

How to maintain the momentum of big data innovations

Organizations that are focused on implementing big data innovations are likely to see enormous benefits for themselves and their patients in the near future. Efforts that may be valuable to all players in the healthcare industry include:

- Creating common goals for all players in the healthcare economy. If organizations only use technological advances to pursue their own interests, innovations won't do a lot of good for anyone.
- Changing attitude regarding data to sharing and protecting rather than just protecting. Information is most beneficial when everyone can use it.
- Investing in the big data capabilities of all healthcare players. Access to information across the industry will improve outcomes for everyone involved.

Important objectives for payers

Insurance companies and other healthcare payers can use big data to learn a lot about the patients in their network. Existing information can be analyzed using new software, and the results can be shared within the network to improve outcomes and lower costs. Future information can be collected more efficiently and accurately by following proven workflows and business processes. By isolating high-performing care, costs can be lowered for everyone.

Priorities for healthcare providers

Providers are crucial in big data implementation because they are the origination of both actual care and data gathering. These organizations can succeed in this technological revolution by enforcing consistent data capture and sharing, ensuring data storage meets appropriate standards, and focusing on using data to improve patient outcomes.

80%

of healthcare data will pass through the cloud by 2018.³

57%

of pacesetters use big data and analytics to accelerate innovation of products and services.⁴

44%

of enterprises expect the adoption of cloud computing to have a significant impact on new business models.⁵

65%

of enterprise IT organizations will commit to hybrid cloud before 2016.⁶

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- Lower operating expenses
- Reduced patient account delinquency
- Improved patient care and support