



BIG DATA: Powering Healthcare's Next Generation



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Today, it seems like everyone is talking about "Big Data." In healthcare, the R&D process, marketing, retailers, patients, and caregivers are all generating an abundance of data. The opportunity to understand these data through analytics is far reaching, and impacts everything from drug discovery and pharmaceutical production to improving patient outcomes at the point of care.



The foundation for analytics-driven innovation

Our wealth of data and improved analytic techniques are driving the "value chain pipeline" of the pharmaceutical and healthcare industry. According to an analysis by Ernst & Young,¹ greater access to a wide variety of Big Data and more powerful analytics, combined with advances in cloud-computing and predictive analytics platforms, are enabling pharmaceutical and healthcare companies to achieve better knowledge across the entire category.

Developments such as minibiosensors, the evolution of smartphones, and apps are resulting in access to increasingly sophisticated health-measurement devices. Increased utilization of disruptive consumer technology is enabling real-time monitoring of users' health status, including blood pressure, pulse rates, and glucose levels. Also, the industry has seen analytics advances that allow individuals to integrate Big Data from a variety of sources in real time, which provide actionable insights and allow for more forward thinking



Transforming patient care

Healthcare data from patients, procedures, treatments, drugs, providers, and organizations can now be accessed and intertwined to create actionable insights and to improve patient care. Hospitals such as the University of Ontario Institute of Technology are already using Big Data and analytics to detect infections much sooner than traditional methods. In a UCLA study, analytics of remote monitoring for heart failure patients predicted associated medical costs, optimization of care, and reduction of overall readmission costs by 61.5%.² New age companies such as Virdata are using Big Data and analytics to monitor health and biometric sensors real time to provide remote aid and biometric applications.

An exciting example of disruptive consumer technology is "smart pills" that release drugs and relay patient data.

Global producer Proteus Biomedical has created smart pills with "ingestible event markers," or sensors made from food ingredients. Eric Topol, Professor of Genomics at The Scripps Research Institute and author of *The Creative Destruction of Medicine*, notes that when used in conjunction with a wireless device, "chip-in-a-pill" technology could "set a new standard for influencing medication adherence and significantly aid chronic disease management."³



The future of healthcare business enterprise

According to the Ernst & Young report,¹ "Enterprise transformation led by big data-driven analytics is no longer a 'pie-in-the-sky' ambition for life sciences companies, but rather an essential and achievable component for their sustained success." This is reinforced by an IDC Health Insights survey,⁴ which found that 66% of healthcare organizations plan to use analytics to better identify patients and members in need of care management. Another 64% of respondents intend to use planned analysis for clinical outcomes, and the same percentage will use the analytics to manage and measure performance.

As companies look for optimal growth and efficiency with advances in cloud-computing and predictive analytics platforms, the power of Big Data and analytics isn't just in aggregation: it's in their use, and are most effective when applied toward innovation. However, transforming a business with analytics and Big Data. It involves alignment, customization, and refinement to create a platform that works for all stakeholders and informs better business decisions.



What's Next in healthcare data and analytics?

Moving forward, analytics and Big Data megatrends will continue to shape the healthcare landscape, driving deeper knowledge, enhanced performance, and improved patient care, which in turn will drive innovation and deeper brand connection. When audiences are more fully vested in brands, they are more likely to build loyalty and improve brand and company performance.



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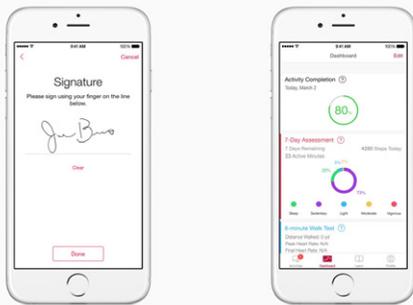
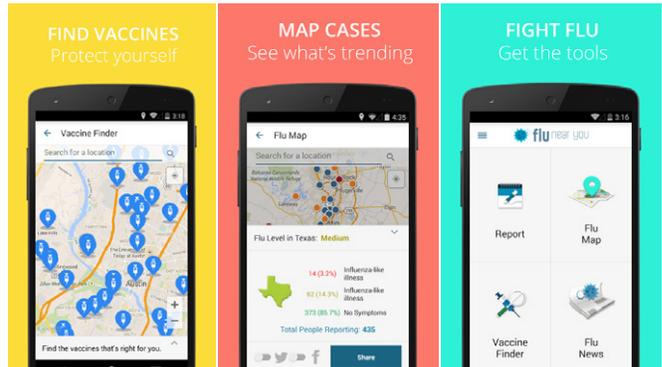


Immersive YouTube

As a company, we’ve done an amazing job at incorporating pharma applications to new immersive technologies such as Oculus and Leap Motion. However, much of the general public doesn’t have access to such devices and is left out of innovative ways to communicate. YouTube’s 360° video utilizes a special 360° camera to truly immerse viewers into events and experiences. It’s now only for Android devices and Google Chrome YouTube, but viewers can move their phone (or the video screen) in any direction and the video will show that perspective. There are potentially many ways pharma can take advantage of this new medium in the form of disease education, interactive MOA video, and experiential campaigns. You decide!

Flu Near You

Flu Near You is a community health project in North America that utilizes publicly reported health information to track influenza-like illnesses. Originally created by epidemiologists at Harvard and Boston Children’s Hospital, the website and mobile application analyzes publicly reported symptoms to report local and national views of illnesses and tracks changes in disease spreading or control. The program also provides new, unique opportunities to educate the public and track outbreaks and vaccine efficacy. This type of crowdsourcing technology can also be expanded to identify changes in patient and physician behavior or engage audiences with poll questions relevant to the disease and or your brand. Visit flunearyou.org for a more detailed look at this innovative new technology.



Apple Research Kit

Apple announced ResearchKit, a software framework specifically for medical research. Taking cues from HealthKit, data captured will have a higher purpose because anyone with an iPhone can now contribute to disease research. 700 million available iPhones solving problems for health is a huge iOS-installed base to help medical researchers with larger sample sizes, better data, and 2-way communication. The first apps made with ResearchKit target asthma, Parkinson’s disease, diabetes, breast cancer, and cardiovascular disease.

“Wearables” in a Shirt

Wearables such as Fitbit have certainly been a rising trend over the past couple of years, and a piece of technology that we fully expected to continue evolving. So what does 2015 bring? Well what’s more wearable than your clothes themselves? Polo Ralph Lauren has been hard at work making that concept a reality. The Polo ‘Tech Shirt’ uses technology developed by a Canadian tech firm Omsignal (<http://www.omsignal.com>) and is designed with biosensing fibers, which relay real-time data to a smartphone or tablet utilizing a Bluetooth device attached to the shirt. It can track distance, calories burned, intensity of movement, heart rate, and stress, among other metrics. This certainly has obvious uses for athletes to track performance, but this type of technology could have even more meaningful use in the healthcare space. Doctors and caregivers could receive real-time patient metrics and get alerts if at-risk patients exceed a certain metric, which would put them at risk for an event. Layer in predictive analytics based on patient data to inform these alerts and...you see where this could be heading. Polo is expected to release the shirt sometime this year.

