

## 2014: The Year of Healthcare Big Data

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The life sciences industry will be defined in 2014 by the growing market demand to apply newly developed technology, including big data analysis, to healthcare and medical device practices. While many of the amazing technological advances in the space are driven by a desire to aid humanity, the industry is also caught between increased economic and regulatory pressure that is forcing many to electronically collect heaps of data while looking for custom technology solutions that will allow them to leverage this valuable data and adhere to new industry standards.

Over the next year, trends that reflect newly available technology will start to develop. The adoption of healthcare big data technology will become a major theme in the sector this year, just as it has in several other industries. Many new technology offerings have been created to tie together data from multiple sources that can be accessed by researchers and physicians to allow them to easily exchange information. This also aids in research and development practices by offering another valuable tool to gather and analyze data.

Tied to the big data trend is the emergence of personal healthcare data aided by physicians' adoption of EHR technology. By allowing patients to own and access their healthcare data on a healthcare information dashboard, patients can more easily understand risks and preventable care options. Pooling anonymized patient data together can also lead to better analysis, and physicians are already starting to work with vendors to develop big data

diagnostic tools. These new technology advancements have started to create a generation of patients more committed to their own healthy future than ever before. Through an intelligent system database, patients and physicians can better understand patterns and symptoms that affect their healthy lifestyles. While this type of big data solution is gaining a foothold, there is still resistance from some doctors due to their concern over critical review of their procedures.

One good example of this is the application of spectral dynamics technology used for medical diagnostics. Spectral dynamics is based on the premise that every physical condition has its own unique signature, and by means of analyzing these signatures, any physical state can be diagnosed and treated. CME (Complex Medical Expert) is a diagnostic system that was invented leveraging this theory and technology, and is aimed at helping physicians determine diagnoses and corresponding treatments for clinical pathologies.

The FDA is also thinking ahead regarding how big data can improve drug safety, medical device and regulatory adherence. Initiatives like the Janus and Sentinel programs will help the FDA electronically collect information on drug approvals, making large strides in a traditionally paper and manual process heavy industry. Once the FDA can determine how best to leverage the huge amounts of data they'll be collecting, the industry will start gearing up for a big data change over.

The emerging healthcare big data technology not only aids getting safer medical treatments to market quicker, they allow doctors to shift their focus from the existing practice of treating people after they become sick, to empowering doctors and patients (through wearable devices, and other technology) to manage their overall health and prevent diseases in their earliest of stages. It's important to note that while early identification and diagnosis of diseases is a great potential value of new big data technology, predictive models can also be created to help life sciences companies develop more efficient and effective clinical trial strategies.

Aside from the tide of healthcare big data, the industry's response to the FDA's newly released guidance for cyber security management in medical devices will be another big theme in 2014. This new focus on medical device security did not exist before the explosion of technology adoption in the healthcare industry, so is likely to present a challenge. There are tools currently available such as, DeviceHive, that offer a fast and complete way to securely control multiple devices, and the industry will need to adopt such solutions to comply with these new standards.

The growing demand and adoption of advanced technology will shape the life sciences industry for years to come. Big data solutions will play a larger role this year, and a focus on regulatory compliance will force companies to examine their solutions in a new light. As more companies recognize the importance of outsourcing and partnering with companies that

understand the software validation process we will see more custom build technology solutions, the industry will enter a stage where the creation of new solutions is accelerated greatly improving the way we research, diagnosis and treat multiple illnesses.