

Decision-Making Through Data

By Dan Quance

There is a tremendous amount of ongoing pressure put on healthcare providers to reduce healthcare costs and improve productivity in the United States. In addition, technology advancements and other external factors are persuading healthcare providers to use advanced communication and collaboration systems across their settings of care. For this reason, many organizations have turned to “Big Data” to guide them through important decision-making processes which, in turn, have become a fundamental part of healthcare. Further, areas that must be addressed by healthcare organizations include crunching and extracting meaningful knowledge from health Big Data, identifying, and developing new decision models, and learning how to manage Big Data as a whole. These challenges compel healthcare organizations to use data analytics, and therefore must be examined closer.

What Is Big Data?

Both Big Data and analytics gather intelligence from data and translate it into a business advantage. However, big data is most often viewed from the characteristics of volume, trending, and variety.

Volume is essentially the amount of data that exists. Trending—data in motion—is perhaps even more important than volume, as it can become a competitive discriminator. By gathering information in actual time, a company can be more responsive than its competition. The third trait pertains to the variety of forms big data can take. Think about all the messages, images, and videos shared through social media, cell phones, satellites, and passive readings from sensors. Unlike information generated from traditional systems, much of this data is unstructured and unwieldy to store and process.

Big data and analytics bring vast opportunities, but they also present organizational challenges across several areas, including technology and culture.

Technology is a central challenge in using big data. A strong technology foundation entails multiple components, starting with an infrastructure capable of capturing, centralizing, and storing a wide range of data. There are then analytical applications that enable people to track key performance indicators, visualize trends, and ask questions about the data.

Data is Key to Performance

Surprisingly, too often in healthcare, decision-making is not data-driven. There are usually three types of analytics

utilized to understand, predict, and manage operational performance:

Descriptive analytics – dashboards, scorecards, and alerts are used to illustrate what happened in the past, but not why it happened or what might change

Predictive analytics – past data is used to model future outcomes (e.g., which patients have the greatest propensity to readmit)

Prescriptive analytics – techniques such as optimization or A/B testing are used to help inform how to do certain activities (e.g., advising a physician on which drug(s) to prescribe for a patient with a certain condition)

Most healthcare organizations are heavily concentrated on the use of descriptive analytics.

Role of Analytics

Analytics is a tool or a set of methodologies that change raw data into meaningful and useful information. This information is further used to enable healthcare organizations to have effective and strategic operational insights for decision-making and set their vision for the future. With technology advancements and data analytics tools on hand, healthcare organizations can easily manage an enormous amount of data. Such data comes from various care settings, hi-tech medical instruments, and online health communities in basic and unstructured forms.

Hospitals and other healthcare organizations struggle to manage basic data on a regular basis. They require extracting useful and meaningful knowledge from such data to be used for the right decision-making and value formation. It is here that analytics play a very crucial role in separating valued data from its unnecessary counterpart. Healthcare organizations are increasingly using analytics to derive new insights from information. New methods of analytics are used to drive clinical and operational improvements to meet business challenges. Analytics in healthcare is opening ways where predictive analytics will allow organizations to better see future prospects, build improved healthcare solutions, empower organizations to access fraud detection, and predict patient behavior.

Big Data Analytics and Decision-Making in Healthcare

As in the past, and still present for most hospitals, business decisions are taken on basic description analytics and prior personal experiences of senior leaders. However, big data analytics are beginning to change the entire decision-making process. Due to the advancement of digital

technologies and data analytic tools, organizations can store, analyze, and transform large volumes of data into meaningful and pertinent information easily. The use of extracted information extrapolated from a vast amount of data is a crucial process for any hospital. To improve this process, powerful tools and techniques are used, including Big Data analytics. There is a growing belief among healthcare organizations that data analytics enable them to get a competitive edge by providing crucial insights into the decision-making process. Hospitals today are recognizing that quality decision-making depends upon the quality of information available to support their decisions, thus making the provision of quality information the key to gaining a competitive advantage.

Fundamentally, Big Data analytics as it pertains to decision-making refers to the process of analyzing big data assets to observe trends and obtain insights for a sound approach in making the right decisions. Acquiring or collecting information does not benefit a hospital's decisions, as raw data is useless on its lonesome. Combined with analytics, however, raw data takes on a whole new meaning and purpose. If hospitals want available quality information to contribute to their performance, then such information must be used to improve their decision-making. Therefore, in today's healthcare industry quality information is considered critical and one of the key determinants of quality decisions and actions. Right information has become a critical resource and an asset for hospitals' clinical and business processes that are based on information.

Types of Data Healthcare Leaders Should Review

When it comes to healthcare, clinical and organizational data such as quality outcomes data, financial data, operational data, volume data, patient experience data, market share, and process data all should be examined. An effective leader or manager will review data on a daily, weekly, monthly, quarterly, or annual basis, depending on what's being measured.

The type of data a healthcare leader will use is multi-dimensional. There is data about the patient experience and how your organization is impacting health outcomes. You may also want to know if your organization/department is growing as well as the status of your operational processes.

For healthcare leaders and managers, there are three general types of data to review:

- Goal-related data. What are the organization's goals, and what data is needed to set, monitor progress on, and achieve those goals?
- Data about your progress in implementing strategies and plans. Are you on track, seeing intended results, or needing to adjust?
- Data about processes or operations to see how things are working in the organization, department, or unit. How well are our processes performing? Do they need improvement?

All organizations use goal-related data, a moderate number of organizations measure data in terms of strategy execution, but only a 'handful' have systematic measures for processes at all levels in the organization. Every manager needs to be looking at the right set of numbers to see if they are carrying out their part in the organization's complicated mission.

Analytics Improving Patient Care

When combined, patient-centered data analytics and healthcare IT solutions are providing greater insights to healthcare providers to improve patient care, cost optimization, and better outcomes. Big data analytics play a crucial role in extracting and providing valuable information from the enormous amount of data available in healthcare to providers and decision-makers. This is extremely important in the formulation of strategies, plans, and crucial decisions. Data analytics help to capture data and convert it into meaningful and useful information. This in turn supports a hospital's effort to gain visibility and effectively change or modify its business model according to specific healthcare industry requirements. The proper utilization of analytics also saves time for doctors and physicians who are often overwhelmed with continuous inputs and chartings. Analytics helps time-strapped doctors and physicians more easily monitor patient data in real-time and thus enables them to invest more time in providing better patient care.

Benefits of Using Data Analytics for Hospitals

When it comes to hospitals and health systems, here are some of the greatest benefits offered by the utilization of analytics:

1. Cut Down on Administrative Costs
2. Clinical Decision Support
3. Cut Down on Fraud and Abuse
4. Better Care Coordination
5. Improved Patient Wellness
6. Helps in the Detection of Data Duplication

Conclusion

Using big data and analytics has been proven to add value and achieve better outcomes within healthcare settings. From managing meticulous details to large processes, analytics can assist the assessment of new growth opportunities, improve service delivery and operations, diminish risk, help design and plan policies and programs, enhance sustainability, provide a means for measuring and evaluating critical organizational data, expand access to healthcare, align pay with performance, and help cut down healthcare costs. **How will your organization make use of such data?**



Dan Quance is an Account Manager at Corazon, Inc. a national leader in program development for the Heart, Vascular, Neuroscience, Spine, and Orthopedic service lines, offering services in Consulting, Recruitment, Interim Management, and Accreditation. To learn more, visit www.corazoninc.com or call 412-364-8200. To reach the author, email dquance@corazoninc.com.