Healthcare Analytics for Quality and Performance Improvement

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Healthcare organizations are challenged by pressures to improve clinical quality of care and patient safety, lower costs, reduce medical errors, and provide more patient-centered service as well as evidence-based practice. Healthcare costs can spin out of control easily. Misallocation of resources can quickly bring down quality of care, and the evidence for this is sharply increasing. Therefore, it is another challenge to utilize data efficiently and visualize data effectively [1,2].

Analytics is the systematic use of data with business insights to drive fact-based decision making for planning, management, measurement, and learning; it has been developed through applied analytical disciplines, such as statistical, contextual, quantitative, predictive, cognitive, and other emerging models [2,3]. In addition, analytics uses descriptive and predictive or prescriptive models to gain meaningful information and finally obtain valuable knowledge from data [4]. Analytics, therefore, should not be considered as an individual analysis or one analysis step [3]. Analytics in healthcare also exists in the same context.

At this time, it is necessary for healthcare organizations to build analytics competencies to harness 'right data' beyond 'big data' to obtain business insights, improve outcomes, and reduce wasted time. Research by the *MIT Sloan Management Review* revealed the following three specific analytics capabilities segments [5]:

- Aspirational organizations
  - New or limited users of analytics
  - Focused on analytics at point-of-need
  - Turn to analytics for ways to cut costs
- Experienced organizations
  - Established users of analytics

- Seeking to grow revenue with focus on cost efficiencies
- Seeking to expand ability to share information and insights
• Transformed organizations
- Analytic use as cultural norm
- Highest levels of analytics prowess and experience
- Seeking targeted revenue growth
- Feel the most pressure to do more with analytics

In the study, 35% of healthcare organizations are aspirational. Almost half (48%) have gained some analytic experience, while 16% have substantial experience using analytics and view analytics as a cultural norm [5]. Transformed organizations were three times more likely than aspirational ones to indicate that they substantially outperform their industry peers [6].

As their analytics capabilities mature, healthcare organizations want to take advantage of the full scope of capabilities of prescriptive analytics to model future scenarios. In healthcare, these capabilities can facilitate evidence-based medicine, personalized medicine, and clinical outcome analytics [6].

For the reasons addressed above, I would like to introduce the book entitled *Healthcare Analytics for Quality and Performance Improvement*. This book reveals the true potential of analytics to utilize vast amounts of data and can help healthcare organizations effectively utilize analytic techniques to improve more visualized fact-based decision-making ability.

In detail, this book discusses 1) how technology has impacted healthcare delivery, 2) the challenges facing healthcare organizations in both clinical and information technology, 3) the tools and techniques to analyze and extract value from healthcare data, and lastly, 4) how the clinical, business, and technology components of healthcare organizations must work together to leverage analytics.

The author of this book, Trevor L. Strome, MSc, PMP, has nearly two decades of healthcare informatics, data management, healthcare quality and performance improvement, and analytics experience. Trevor is the Analytics and Process Improvement Lead for the Winnipeg Regional Health Authority Emergency Program. He also is Assistant Professor at the Department of Emergency Medicine, University of Manitoba, Manitoba, Canada.

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