Part IV
Looking at Today and the Near Future

Charlotte A. Weaver

In Part IV, we present the work of early innovators in the application of big data analytics within the healthcare domain that demonstrates its potential, usefulness and power to discover new insights and answer challenging questions that have eluded clinicians, managers and researchers heretofore. Additionally, new web and cloud platform technologies have made possible this aggregation of massive databases from disparate sources not seen previously (see Murphy and Barry; and Harper and McNair). These data sources include bringing data together from multiple venues/provider organizations (post-acute care, ambulatory clinics, Emergency Departments, and acute care); claims data from insurance and government payers, and from numerous large healthcare provider organizations using different electronic health record systems.

Included in Part IV are three nurse-led initiatives from different large health systems. These systems include: the Veterans Administration; Kaiser Permanente; and Cerner Corporation in partnership with insurers, government payers, national laboratory centers, and multi-facility, client organizations. Weir and colleagues present their work on the question of delirium risk and detection using the Veterans Health Administration’s massive VINCI database. In addition to reporting on different methodologies used, their focus includes detailing the full team that does the statistical analysis and has the expertise needed for doing these types of analyses as an important part of the story that needs to be understood by those seeking to be ready to do big data analytics within their own settings.

Soriano, O’Brien and Chow from Kaiser Permanente (KP) also focus on delirium in their description of a nurse-defined research initiative for early identification and more effective treatment of delirium patients across their healthcare system. This multi-year initiative started by querying the KP database of over 5 million lives and 20 years of data. The KP story offers up an excellent example for other nurse executives within large healthcare organizations on how to use data analytics to address complex care issues.
Harper and McNair offer a thorough discussion on the value of using analytics methods to merge data from multiple sources to answer questions that heretofore have not been available to nursing. They explore partnerships between EHR vendors and their healthcare organization clients in this journey, as well as the nurse informatician’s roles in ensuring the success of the partnership endeavor. Four case studies are presented that illustrate the breadth and creativity of specific healthcare organization’s initial forays into big data analytics: Smith and Snavely tackle reducing alarm fatigue in a community-based health system; Giard and Sutton capture actual keyboard times to provide a machine-generated measure on nurse documentation times; Jenkins describes an innovative methodology for deriving patient-specific, direct-nursing cost metrics; and, Bober and Harper describe Advocate Health Care’s undertaking to develop a tool that scores a patient’s readmission risk.

Murphy and Barry offer an applied look at how analytics behind the scene will soon be the new norm for point of care. In an exploration of the combined powers of web-based technologies and analytics housed in new mobile applications, they list the ways mobile apps will enable precision nursing at point of care and support team care across the care continuum.

Part IV chapters and case studies illustrate how the early pioneers are building cross-discipline teams and industry partnerships to bring the resources, “know how”, technology and data sources together to make their “big data analytics” possible. These are valuable exemplars and stories. These current day initiatives speak to opportunities that nurse leaders, healthcare systems, payers and research centers can reference as they start their own analytics journey in pursuit of optimum quality outcomes, minimizing waste and error, and promoting safe and enjoyable workplace environments.