Engaging the Informatics Student with Real-Life Data Analytics for Quality Improvement

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INTRODUCTION

Improving quality healthcare delivery based upon data analysis of performance measurements is an important role for informatics nurses and one that is difficult to teach using traditional methods. Typically, practice experiences or scholarly projects provide the best learning opportunities for the informatics student to decipher how to manage data, interpret results, and implement quality improvement initiatives in nursing practice.

What if the student’s learning experiences could be enriched by using live data from organizations as they complete course work? To fully engage students in meaningful learning experiences, Doctor of Nursing Practice (DNP) faculty have embraced a database using real-life, blinded data from healthcare organizations. The database uses de-identified live data from regionally distributed acute care facilities of various sizes created from diversified healthcare organizations.

DATABASE SCREENSHOTS

COURSE OBJECTIVES

- View data from 40 hospitals in select geographical regions of the United States.
- Utilize knowledge discovery methods or data mining techniques to identify patterns and trends.
- Classify the data based on select quality initiatives or specific diagnosis classifications such as ICD-10 codes.
- Critique the data to detect outliers based on locations and timeframes (seasonality).
- Utilize the data to make predictions and problem solve prospectively.
- Compile material into infographic formats for presentation to diverse, multidisciplinary audiences.

COURSE ASSIGNMENTS

The innovative assignments and discussion forums allow the informatics student to assimilate meaningful learning experiences supporting quality improvement and decision making. These experiences are invaluable for the student’s education and future professional practice.

- Multiple quality indicators such as Catheter Associated Urinary Tract Infection Rates (CAUTI), Central Line Associated Blood Stream Infections (CLABSI), Falls/Trauma, and Hospital Readmission Rates are available for student evaluation. Additionally, cases of Clostridium difficile (C. diff) and Methicillin-resistant Staphylococcus aureus (MRSA) along with pneumonia, heart failure and COPD cases are accessible. Students can capture the data over a specified time frame, perform statistical analyses, identify quality improvement opportunities, and develop clinical pathways.
- Students can explore Information Technology (IT) budgets of a particular facility with relevant information such as number of beds, total operating budget, revenue, and income margins. Budgets are methodically analyzed; data is evaluated and compared with similar facilities to identify areas of improvement.
- Students can review Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores which survey patient's perceptions of the hospital experience and evaluate the scores related to quality initiatives. Students can identify measures to improve quality outcomes. They can propose technology initiatives to engage the patient and improve satisfaction.
- Students can improve quality and patient safety with detailed information.
- Students can discuss confidentiality, identify strategies for protection of personal health information, and utilize IT management tools to support a safe process of care with detailed information.
- Students can participate in knowledge discovery methods or data mining to predict outcomes, and examine patterns.

ALIGNMENT TO COMPETENCIES

The course assignments and discussion forums utilizing the database can be aligned to nursing informatics education competencies as outlined by various invested agencies and associations.

The Healthcare Information and Management Systems Society (HIMSS) identified basic informatics competencies for entry level nursing practices in the Technology Informatics Guiding Education Reform (TIGER) initiative. The initiative included basic computer competency, information literacy competency, and information management competency (HIMSS, 2011).

The Quality and Safety Education for Nurses (QSEN) Institute (n.d.) identifies informatics competencies addressing the nurse’s ability to “use information and technology to communicate, manage knowledge, mitigate error, and support decision making” (Informatics section, para 1).

Essentials of Doctoral Education for Advanced Nursing Practice authored by the American Association of Colleges of Nursing (AACN) are foundations for the course.

- Essential II: Organizational and Systems Leadership for Quality Improvement and Systems thinking states, “DNP graduates must understand…practical strategies for balancing productivity with quality of care” (p. 10).
- Essential III: Clinical Scholarship and Analytical Methods for Evidence Based Practice requires that the DNP program prepares the graduate to collect and analyze data, design interventions, predict outcomes, and examine patterns.
- Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care states that graduates should “use information systems/technology to support and improve patient care and healthcare systems” (p. 12).

REFERENCES

