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Informatics Essentials for DNPs

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Abstract

Doctor of Nursing Practice (DNP) programs are proliferating around the US as advanced practice nursing programs evolve to build capacity by adding content on professional leadership, policy, and quality improvement to the traditional clini- cal content. One of the eight "Essentials" for DNP education is "Information systems/technology and patient care technology for the improvement and transformation of health care. "[1] A required graduate course was revised and updated in 2017 to provide a foundation in clinical informatics for DNPs, as well as for nursing informatics specialists. Components of the online course, assignments, and free online resources linked to the DNP Essentials are described in this paper.

Keywords: Quality Improvement, Education, Information Technology

Introduction

Doctor of Nursing Practice (DNP) programs are proliferating around the US as advanced practice nursing programs evolve to build capacity by adding content on professional leadership. policy, and quality improvement to the traditional clinical content. As one of the eight "Essentials" for DNP education is "Information systems/technology and patient care technology for the improvement and transformation of health care"[1], there is open opportunity to build nursing capacity in clinical informatics. Consistent with educational theory, a required graduate course was revised and updated to provide a foundation in clinical informatics for DNPs, as well as for nursing informatics specialists. Components of the online course, assignments, and free online resources linked to the DNP Essentials are described in this paper. This intellectual property of the course author is shared freely with the nursing informatics community.

Online Learning Theory

Today's online courses may be considered as modern evolutions of previous paper-based and mailed "correspondence courses" that are meant to increase access to education. Online courses are often delivered asynchronously, making them especially convenient for working adults.

Occasional synchronous webinars may enhance communication among the course participants. Building on multiple theories, Picciano has proposed a "Multimodal Model for Online Education" [2] that includes both independent study and community interaction.



Figure 1. Multimodal model for online education (from Picciano, 2017).

Components of the model are: content, face-to-face teaching, independent study, dialectics/questioning, reflection, collaborative learning, and evaluation. Online courses may emphasize some components over others. The course described here emphasizes content (readings and multimedia), independent study assignments, a combination of questioning and collaborative learning in discussion boards, and evaluation.

Course Description

This course explores information technology and data management to support evidence-based decisions in nursing and healthcare. Emphasis is placed on the critical appraisal of standards for documentation, modeling, and transmission of high quality, reliable data for use in clinical care, healthcare administration, and quality improvement.

Course Objectives

Upon completion of this course, the student will be able to:

- 1 Understand and apply documentation, modeling, and trans- mission standards for high quality, reliable data in clinical care and healthcare administration.
- 2 Analyze legal, ethical, and policy issues related to electronic data, including protections for privacy and security.
- 3 Implement information technology and best practices in data management in the conduct and evaluation of evidence - based nursing practice and healthcare administration.

Student Learning Outcomes

- 1 Examine essential roles and competencies for nurses in informatics and healthcare data management.
- 2 Evaluate technical and nontechnical issues associated with the implementation of information technology and data management in healthcare.
- 3 Apply ethical and legal principles to information technology and data management in healthcare.
- 4 Apply ethical and legal principles to information technology and data management in healthcare.

Resources and Assignments Linked

Free online resources in this paper's reference list, and author-created assignments are linked to the five DNP Information Technology Essentials in quotations [1, 3, 4]

- A. "Design, select, use, and evaluate programs that evaluate and monitor outcomes of care, care systems, and quality improvement including consumer use of health care information systems." [1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13] Assignments include self- assessment of Excel skills and two excel analyses related to administrative and clinical quality datasets.
- B. "Analyze and communicate critical elements necessary to the selection, use and evaluation of health care information systems and patient care technology." [14, 15, 16, 16, 17, 18] Assignments include workflow mapping to improve care efficiency and patient safety.
- C. "Demonstrate the conceptual ability and technical skills to develop and execute an evaluation plan involving data extraction from practice information systems and databases." [19, 20, 21, 22, 23, 24] Assignments include documenting a nursing encounter using a standardized terminology and matching that to national quality measures.
- D. Provide leadership in the evaluation and resolution of ethical and legal issues within healthcare systems relating to the use of information, information technology, communication networks, and patient care technology." [25, 26] Assignments include creating and evaluating a personal health record (Microsoft Vault) and a social networking website (Patients Like Me) and assessing pros and cons related to nursing guidelines.
- E. "Evaluate consumer health information sources for accuracy, timeliness, and appropriateness." [27, 28, 29, 30, 31, 32, 33] Assignments include evaluating the validity of a consumer health website and com- paring it to MedlinePlus.gov.

Conclusion

Students in the course learn that electronic health records (EHR) in primary care can be rich data sources for analysis of population health and quality improvement. Following the "Multimodal Model for Online Education" [2], students are evaluated for independent study assignments, real-time webinar participation, as well as a combination of questioning and collaborative learning in asynchronous discussion boards.

Data standards and data quality are fundamental content for students who will be faced with a wide variety of EHR

software. Essential variables for DNPs stem from up-todate preventive and chronic care guidelines; standardized workflow and data entry support valid and reliable data capture. Care coordination to enhance population health is facilitated by incoming data from laboratories, pharmacies, consultations, emergency room visits, home care, and hospital stays. Regis- tries and reports that are easily accessible by the primary care team are important for frequent checks on population health status, and rapid turn-around of incremental quality improvement of primary care specialties benefit from learning best practices in documentation and workflow to prepare to implement future changes to promote a robust learning health system.

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