Title:
Innovative Strategies for Integrating an Electronic Health Record (EHR) Into Nursing Education

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References:
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Abstract Summary:
The purpose of this presentation is to discuss the process of selecting and implementing a new electronic health record (EHR) into undergraduate and graduate curricula, and to explore innovative methods for its use in multiple settings (didactic and clinical). Recent experiences regarding integration of the EHR will be shared.

Learning Activity:

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
1. Discuss strategies and priorities when selecting an electronic health record (EHR) for an academic nursing program.	a. Factors in selection of a new EHR. b. Orientation of faculty and students to the new EHR.
2. Describe innovative methods for utilizing and evaluating an EHR as an educational tool for undergraduate and graduate students.	a. Implementation of the EHR during simulations at undergraduate and graduate levels. b. Other uses for the EHR as an educational tool in clinical and didactic settings. c. Evaluation of utilization of the new EHR by faculty and students.

Abstract Text:

Background

The adoption of an electronic health record (EHR) is critical to patient safety. EHR's promote quality, improve outcomes, and reduce healthcare costs (HealthIT.gov, n.d.). EHRs provide timely and comprehensive access to patients' health information and offer decision support systems which can promote accurate and prompt diagnosis. EHR use can decrease errors and improve patient outcomes through prompts, alerts, and reminders (Nguyen et al., 2014). For example, pediatric immunization

prescribing errors and adverse events were reduced through the use of age-specific alerts in an EHR system (Rogers et al., 2016). EHR use was linked to significantly higher care quality in four ambulatory quality of care measures: hemoglobin A1c testing for diabetes, breast cancer screening, colon cancer screening, and chlamydia testing (Kern et al., 2012). In a study of computerized bedside nursing documentation, Walker-Czyz (2016) reported a significant reduction in total falls, catheter-associated urinary tract infections (CAUTIs), and central line-associated bloodstream infections (CLABSIs) following integrated EHR implementation without increasing direct costs.

Based on mounting evidence of the impact of EHRs, the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 mandates health care providers to adopt an EHR, show meaningful use, and demonstrate improvements in safety and efficiency through the use of health information technology (HealthIT.gov, n.d.). To meet these goals, education and training of current and future EHR users (including nursing students) is crucial. Multiple professional and government agencies have proposed that nursing programs teach information technology (IT) and include efficient and effective use of an EHR (Sorensen & Campbell, 2016). The Health and Medicine Division (HMD) of the National Academies of Sciences, Engineering, and Medicine (formerly the Institute of Medicine), and the Quality and Safety Education for Nurses Institute (QSEN) are leading the call to integrate use of an EHR into nursing curricula. In addition, the AACN Essentials for Baccalaureate and Masters Education in Nursing include efficient use of electronic health records as a core competency for graduates (AACN, 2008; AACN, 2011).

New graduate nurses must skillfully access patient data and then document and synthesize patient information accurately to plan safe, quality care and avoid potential errors. Nurse educators need to integrate EHRs into their curricula to give students practice in the use of electronic documentation and retrieval of clinical information so that they meet this expectation (Warboys, Mok, & Frith, 2014). Curricular changes are required to infuse technology into patient care documentation, but barriers exist including lack of resources (time, money, space) and lack of knowledge (faculty and students) (Brooks & Erickson, 2012). Nguyen et al. (2014) identified workflow changes and disruptions as barriers to successful EHR adoption and implementation.

Despite the push to integrate and teach the use of EHR's to nursing students, there is little evidence to suggest effective methods for doing so (Sorensen & Campbell, 2016). Pobocik (2015) recommends use of the EHR in nursing programs to analyze patient cases where the recognition of clinical cues accurately and promptly and to choose more appropriate nursing diagnoses (Pobocik, 2015).

Purpose Statement/Abstract Summary

The purpose of this presentation is to discuss the process of selecting and implementing a new electronic health record (EHR) into undergraduate and graduate curricula, and to explore innovative methods for its use in multiple settings (didactic and clinical). Recent experiences regarding integration of the EHR will be shared.

Objectives

The objectives of this presentation are as follows:

1. Discuss strategies and priorities when selecting an EHR for an academic nursing program.
2. Describe innovative methods for utilizing and evaluating an EHR as an educational tool for undergraduate and graduate students.

Methods

The Ohio State University College of Nursing faced this challenge and these barriers in 2014 when the decision was made to select and integrate a new EHR into the curriculum and mandate its use in

simulations. Faculty were polled about how they were documenting care during simulations, and most were using the archaic system of paper charting or struggling with an ineffective and defunct electronic chart that the college had acquired in 2004. Students and faculty were frustrated by this component of simulation.

After a detailed review of multiple academic EHRs (AEHRs), the college selected and implemented a new EHR that mimicked the university medical center's electronic charting system. The new EHR 'went live' in the summer of 2016 with the Family Nurse Practitioner (FNP) students during simulations and physical assessments. This past autumn, all undergraduates and pre-licensure graduate entry program students (totaling approximately 650 students) as well as the FNP students (approximately 35) used the new EHR in the simulation lab. Students documented and monitored patient assessments, medication administration (including use of barcoding and scanning functions), physician orders, and test results. Faculty have piloted other uses for the new EHR, such as using the system to do case studies in the pharmacology course. The new EHR directly links students to clinical decision support systems such as Micromedex, so that active application of content occurs in real time in any setting and contributes to the planning of care.

Specific to graduate student use, recent directives transitioning to wide-spread use of EHRs and Medicare guideline restrictions for medical student documentation (often applied to APRN students), as well as provider reimbursement concerns by health organizations, have impacted advanced practice nursing clinical education (Forsberg, 2015). Using an AEHR during simulation or with an objective structured clinical exam (OSCE) may be the only opportunity for APRN students to fully document their comprehensive care in an EHR.

The majority of undergraduate and graduate students who use this new EHR recognize that it is nearly identical to what is used in the university's medical center. This transfer of learning from the academic to the clinical setting promotes confidence and competence in the student who is documenting care. It allows students to connect theory to practice, to transform their knowledge, skills, and attitudes about this technology, and to become competent and proficient in the promotion of safe, quality care and optimal patient outcomes.

Results

Evaluation of the new EHR includes quantitative and qualitative data. The college has used the modified Simulation Effectiveness Tool (SET-M) since 2015 to evaluate simulations (Leighton, Ravert, Mudra, & McIntosh, 2015). The SET-M was developed and then modified in 2014 to measure students' evaluations of their performance in the simulation learning experience, including their understanding of medications and pathophysiology, clinical decision making ability, and assessment skill proficiency. Two qualitative questions were added to the SET-M so that students could share thoughts and perceptions of using the new EHR to document the simulation. Qualitative comments were overall positive. Students most often cited the realism of using the EMR, as well as its applicability/similarity to the EMRs required on their clinical units. Students valued the ability to practice with this technology because it facilitated their efficiency with it's use on the units.

Faculty were polled using a qualtrix survey that will be repeated at the end of each semester to assess faculty satisfaction. Faculty were satisfied with the new EMR, also citing the fact that it enabled them to practice in a simulated situation so that their level of skill and efficiency would be positively affected on the units.

Significance and Implications

Documentation of care using the evidence-based practice (EBP) tools available in the EHR at the point-of-care delivery leads to improved decision making, critical thinking, and better patient outcomes (Walker-Czyz, 2016). All nursing graduates must acquire basic health informatics competency in order to fully

participate in collaborative care and to effectively use EHRs across all patient care settings (Sorensen & Campbell, 2016; Choi et al., 2016). Using multiple innovative teaching strategies for nursing students at the undergraduate and graduate level enhances skills, knowledge and attitudes. These attributes equip students to transition smoothly into technology-savvy environments where EHR use must be efficient and effective. The benefits to the healthcare system and its patients are tremendous, in terms of improved outcomes and reduced costs.

The use of the new EHR at the OSU College of Nursing has required innovative strategies to train proficient users. Continued evaluation and collaboration with the simulation team will modify these strategies as needed.