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Development of an Electronic Health Record Educational Project for Staff Nurses

Nanah Sheriff Sesay

Walden University

Walden University

College of Health Sciences

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Nanah Sesay

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Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2015

Abstract

Development of an Electronic Health Record Educational Project for Staff Nurses

by

Nanah Sheriff Fofanah-Sesay

MSN, Howard University, 2008

BSN, University of the District of Columbia, 1997

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

June 2015

Abstract

The use for electronic health records (EHRs) by 2015 is being mandated through incentive payments for health care providers. Evidence-based literature has shown that almost half of the hospitals in the Unites States have not adopted EHRs, and many nurses have not been educated to effectively use them. In order to enhance and sustain EHR adoption by hospitals, nurses need to be educated on EHRs' usability. The purpose of this project was to develop an evidence-based EHR educational project for nurses on how to enter nursing assessments, document patients' medical data, and communicate effectively with patients and health care providers. The development of this educational project was guided by Ajzen's theory of planned behavior. An advisory committee of 5 members determined the effectiveness and usefulness of the project. The advisory committee was comprised of the director of nursing, the director of information technology, a nurse manager, a nursing informatics specialist, and a staff nurse. Findings from the advisory committee indicated the project was in alignment with the objectives for meaningful use of EHR adoption by hospitals, conformed to the quality standards established by the agency for which this project was developed, and provided educational materials that were helpful in enhancing staff nurses understanding of EHR usability. In addition, feedback from the nurses who reviewed the educational project indicated that they were concerned about frequent upgrades and customization that were being made in Epic and the project was useful in enhancing staff nurses understanding of Epic usability. This project has the potential of increasing staff nurses' efficiency in using the Epic EHR system.

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Dedication

This project is dedicated to my late father, PA Sheku Santigie Fofanah, who had always believed in my strength as a future leader, and to my husband, Alie and two sons Alpha and Rashid, who are my rock and constant motivators.

Table of Contents

Section 1: Overview of the Evidence-Based Project

Introduction

Implementation of Electronic Health Records (EHRs) is gaining momentum among health care organizations across the United States. The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009 promotes the adoption of EHRs by healthcare organizations in order to meet the government mandate for effective and efficient use by 2015 (HealthIT, 2013). As a result of this mandate, hospitals across the United States are implementing various forms of EHR systems. From 2009 to 2012, hospital adoption of at least a basic EHR without clinicians' notes has more than tripled, increasing from 16% to 56% (HealthIT, 2013). In 2012, 16.9% of hospitals across the United States adopted comprehensive EHR systems, 27.6% adopted basic EHR systems with notes, and 11.5% adopted basic EHR systems without notes. The total adoption was 55.9% in 2012 (HealthIT, 2013). This rapid rate of EHR adoption by hospitals has created a need for nurses to learn the functionalities of EHRs in order to chart effectively and efficiently. In addition, the more informed nurses are about EHR usability, the less likely they will be to make errors with charting that may predispose them to liability and malpractice law suits.

The benefits of EHRs over standard paper charting are undeniable and should not be ignored by healthcare organizations as this system allows for the most complete patient records possible. Electronic health records consolidate all disparate information such as laboratory and radiologic tests results, blood work, treatment plans, prescriptions, allergies, medications, nursing assessments, history and physical, and progress notes, which diminish unnecessary repetition of procedures (HealthIT, 2013).

Electronic health records also promote efficiency so that new healthcare providers can easily access information from a referring physician (HealthIT, 2013). In addition, EHRs promote coordination of care, whereby healthcare providers and nurses communicate directly with each other while caring for a patient (HealthIT, 2013). Kutney-Lee and Kelly (2011), found that a basic EHR system showed promise in bringing about more efficient patient care, better care coordination, and safety for patients. Electronic health records enhance patients' safety through immediate live or remote access to patients' allergies, medical history, and drug interactions (HealthIT, 2013). Because of EHRs, the health care consumer now has the flexibility to view their own health records and better coordinate their health care with physicians (HealthIT, 2013). While EHRs have shown promise with better patient care coordination, some staff nurses have verbalized frustration and dissatisfaction with EHR systems.

In March 2012, the organization for which this educational project was developed implemented the Epic EHR system. This implementation resulted in a high rate of nurses' resignations and retirements due to increase frustrations from inefficient training and lack of ongoing technology support (Inova, 2013). Nurses may be less likely to be frustrated and dissatisfied if they are knowledgeable about the various features or functionalities of EHRs. This educational project was developed to provide staff nurses information on how to chart effectively using EHRs.

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Problem Statement

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As stipulated by the Center for Medicare and Medicaid Services, healthcare organizations implementation of EHRs is considered best practice due to patient care benefits (HealthIT, 2013). Nurses will be involved with the implementation of EHRs and will have to begin using these systems. The most frequent activities of nurses who use EHRs are: assessment, documentation,

and communication (Brokel & Harrison, 2009). According to Brokel and Harrison, assessment takes 18.1%, documentation 9.9%, and communication 11.8% of the nurses' day.

Clavreul (2013) indicated that the learning curve for EHRs can be steep. According to Gold (2013), registered nurses who regularly use EHRs find limitations with their ability to perform these tasks. Nurses verbalized that EHRs were cumbersome to use, difficult to learn, and malfunctioned frequently. Problems such as dropdown menus deter nurses from adequately documenting patients' assessments (Clavreul, 2013). A particular annoyance of some nurses is an EHR system that forces them to choose from a list of assessment activities rather than allowing them to record what they actually see, representing a potentially dangerous limitation (Clavreul, 2013). As a result, EHRs have the potential to create additional work and frustration for nurses. In preparation for this change, staff nurses are not being included in the design, implementation, and customization of EHRs (Seidlitz, Blatz, Jennings, & LaRocca, 2013). Moreover, once EHRs are implemented, staff nurses will receive minimal training on EHR use (Gold, 2013). As a result, most nurses are concerned about the liabilities they may be predisposed to such as increased medication errors and the inability to chart accurate assessments (Gold, 2013). Therefore nurses need an educational project that can train them to effectively use EHRs in patient care.

Purpose Statement and Objectives

The purpose of this scholarly project was to develop an EHR educational project to educate nurses on the functions of EHRs for effective charting. The project focused on nursing tasks such as assessments, documentation, and communication. This education was necessary to assist nurses to become prepared for EHR adoption by healthcare organizations. The purpose of

this EHR educational project was to identify evidence-based developmental resources. The objectives are as follows:

1. By the end of this educational project, evidence-based resources were identified to develop an educational project that informed nurses on EHR functions for effective charting.

2. By the end of this educational project, an evaluation plan was developed to allow healthcare organizations to evaluate the effectiveness of this project.

Stakeholders Involvement

According to Hodges and Videto (2011), stakeholders are people who can provide credibility to the evaluation of a project, they are responsible for the project's day-to-day operations, and are in a position to advocate and authorize changes that might be recommended by the evaluation. Key stakeholders that were involved with this educational project are: staff nurses, the nurse informatics specialist, nurse managers, the chief nursing officer, the chief executive officer, and the director of information technology. The stakeholders for this project were engaged at the initial phase of the program as their feedback is used to guide this educational project. Feedback from the stakeholders was taken into consideration prior to project implementation. Early engagement of stakeholders provides a valuable opportunity to influence public perception and set a positive tone with stakeholders (International Finance Corporation [IFC], 2013). Moreover, early interaction with stakeholders helped to generate ideas, identify potential problems and risks as well as alternative solutions with development questions. Current evidence-based research on other healthcare organizations that are utilizing EHR systems was presented to the stakeholders, as this strategy likely increased their interest in this educational project. Lastly, stakeholders for this project were educated on the federal mandate related to the

use of EHRs. For example, they were informed that healthcare organizations must show meaningful use or implementation of EHR by 2015 and failure to show this by 2017 will result in noncompliance penalties (HealthIT, 2013).

Researchers have shown that when healthcare organizations are confronted with the possibilities of losing Medicare and Medicaid dollars, the likelihood of compliance becomes a priority (Center for Medicare and Medicaid Services, 2010). However, nurses were more likely to learn the information provided in this project because they are more motivated by their employers to maintain compliance and required accreditations (Inova, 2013). This project was developed based on the need to educate staff nurses on the functionalities of the EHR system in order for them to be able to chart efficiently.

Significance/Relevance to Practice

Researchers have shown that the implementation and utilization of EHRs among healthcare organizations is advantageous to not only health care providers and patients but also to communities, societies, and the world (HealthIT, 2013). Efficient utilization of EHRs by nurses is a significant issue for health care practices for multiple reasons. First, it will enable nurses to provide care in a much safer and more efficient manner. Second, it will decrease the potential for medical errors caused by poor penmanship of health care providers. Third, it will allow nurses to effectively share patients' health information among healthcare providers. Last, it will enhance nurses' ability to accurately retrieve and communicate laboratory tests, radiologic tests, and other diagnostic tests results within and outside of organizations. According to HealthIT (2013), EHR implementation has resulted in a cost reduction savings from $ 37 million to $ 59 million annually in large hospitals. In addition, EHR use by nurses has been shown to reduce medication errors due to its capability to alert end-users about potential problems.

According to Menachem and Collum (2011), serious medication errors can be reduced by as much as 55% when computerized physician order entry system is used alone, and by 83% when coupled with a clinical decision support system that create alerts based on what the physician orders.

DesRoches, Donelan, Buerhaus, and Zhonghe (2008) found that nurses who work in hospitals with EHRs are more likely than other nurses to report nursing excellence and quality improvement efforts. Most staff nurses want to incorporate information technology into patient care and as such, they want to provide this care in a way that can be safe for them and their patients. According to Schwartz (2012), nurses are especially appreciative of improvements in everything from pneumonia and pressure ulcer prevention to more appropriate screening and better outcomes for patients with chronic conditions. In a study conducted at the University of Pennsylvania, nurses working with EHRs consistently reported more improvements to nursing care and better health outcomes for patients than nurses working in hospitals without this technology (Schwartz, 2012). One of the greatest benefits of EHRs is its associated transparency in healthcare providers' management of their patients and how patients perform self-care. According to Skala (2013), the new EHR systems will allow nurses, healthcare providers and the government to learn how smoking, obesity, and lack of exercise can potentially harm the nation's health by inputting this data in the EHR for comparison to healthy individuals. Based on the benefits of EHR implementation in hospitals, it is imperative to provide nurses with evidence-based information needed to enhance EHR usability thereby promoting their provision of excellent nursing care.

The Project Question and Goal

The project question was: What evidence-based resources are needed to develop an EHR educational project that will educate staff nurses on the functions of EHRs for effective charting? The goal of this scholarly project was to develop an EHR educational project for staff nurses to enhance their understanding of EHR functionalities for effective charting.

Evidence-based Significance of the Project

The U.S. healthcare system is at a pivotal point of change as a result of the widespread use of EHRs. Electronic health records are being implemented as part of the health information technology (HIT) revolution and future use is likely to continue (Topaz, Rao, Creber, & Bowles, 2013). Health information technology was enacted as part of the American Recovery and Reinvestment Act of 2009 and was instigated by the 2009 Health Information Technology for Economic and Clinical Health Act. According to these acts, most healthcare providers across the United States are required to implement HIT or show meaningful use by 2015 (Topaz, Rao, Creber, & Bowles, 2013). These meaningful users are healthcare providers or healthcare organizations of electronic health records use certified EHR technology in ways that can be significantly measured in quality and in quantity (Topaz, Rao, Creber, & Bowles, 2013). In addition, healthcare practices that show meaningful use of HIT by 2015 will receive monetary incentives, whereas practices that fail to implement certified EHRs will be penalized (Topaz, Rao, Creber, & Bowles, 2013).

One of the biggest challenges for effective implementation of EHRs into clinical practice is the nurse's inability to use the technology effectively and efficiently. Effective implementation of EHRs requires regular system updates and appropriate user education (Topaz et al., 2013). Because inappropriate use of EHRs can result in privacy breeches, unsafe nursing care,

medication errors, and other medical accidents, it is imperative that changes and updates to

EHRs are properly communicated to nurses through education and training (Topaz et al., 2013).

Organizational support in providing staff nurses with the knowledge of EHRs functionalities to

chart effectively can result in the implementation of an outstanding EHR system (Edwards,

2012).

Health information tools such as EHRs can help nurses better manage and transfer

information to improve healthcare practices more widely available. Efficiency is another

advantage of using EHRs. According to Menachem and Collum (2011), efficiency refers to the

avoidance of wasting resources, including supplies, equipment, ideas and energy. According to

these authors, one such form of waste involves redundant diagnostic testing. These authors

further reiterated that ordering redundant tests are costly and may lead to false-positive results.

Nies, Colombet, Zapletal, Gillaizeay, Chevalier, and Durieux (2010), examined the effects of

clinical decision support systems on the redundancy of blood tests in a cardiovascular surgery

department and found that point-of-care computerized reminders of previous blood tests

significantly reduced the proportion of unnecessarily repeated tests. In a similar study of

hospitals, researchers found that computerized records and order entry are associated with lower

mortality rates, and clinical decision support is associated with fewer complications.

Additionally, the same study found that computerized test results, order entry, and clinical

decision support are all associated with lower costs (Menachem & Collum, 2011). Based on

these findings, it is necessary to educate nurses on EHR functionalities. This scholarly project

provided staff nurses with education on entering laboratory and diagnostic tests and nursing

assessments, retrieving laboratory and diagnostic test results, and communicating with inpatients

and outpatient providers about these tests in order to prevent redundant tests and increased health care costs.

In a successful EHR implementation story (2013), a nurse practitioner (NP) improved quality, safety, efficiency, and reduced health disparities in her rural healthcare practice after attending an EHR training class. This training class enhanced this NP and her staff's understanding and experience concerning the whole EHR process and provided education on how to solve both technical and staff situations that sometimes occurs with implementation (HealthIT, 2013).

In addition, nurses have voiced frustrations and dissatisfaction about the development, design, implementation, and customization of EHRs. These problems may be ameliorated by providing information to nurses on how to chart effectively. This educational project provided information for staff nurses in regards to entering nursing assessments, documentations of patients' data, and communication with patients and healthcare providers to enhance effective and efficient use of the EHRs.

Implication for Social Change in Practice

While health information technology will have its greatest influence on how staff nurses plan and document care, all facets of care will be communicated increasingly by digital workflow (Sensmeier, 2012). Adoption of health information exchange is expected to increase the efficiency and effectiveness of clinicians' interactions with each patient and the target population (Sensmeier, 2012). In addition, interoperable EHRs linked with personal health records and shared support systems will influence how collaborative care teams work and share clinical activities (Sensmeier, 2012).

According to HealthIT (2013), achieving EHRs meaningful use or implementing new models of care will change how people in organizations do their work. Concurrently, Leape and Berwick (2005) concluded that managing the people dimension of organizational change is critical to achieving success for any change initiative because changing how people work together can alter the organizational culture. Reviews of failed change initiatives showed that failure occurred because the initiatives did not deal with changes in how people and organizations work (Leape & Berwick, 2005). According to HealthIT (2013), practice leaders must consider several people-related factors when facilitating change for their staff; change creates uncertainty by upsetting the equilibrium of both individuals and organizations. Change provokes fear of loss: this includes job loss, loss of social position in the group, and loss of self-esteem related to fear of being unable to use the technology or adequately care for patients using the technology (HealthIT, 2013). During any change, the pressure to resist is powerful as staff may feel that tensions associated with change and the social price for cooperating with the change are too much to accept.

Other challenges occur when staff members believe that the proposed change is not in their best interest, in that case, they will resist change, especially if they have had or even heard about negative experiences with other organizational changes or HIT implementations (HealthIT, 2013). Key points to consider when implementing EHRs are the inclusion of nurses in assessing policies, procedures, and workflow. Nurses should have the ability to implement changes in these areas because they are the experts on what is working and what is not working. As a result, nurses will be able to make recommendations for using technology to move patient care to the desired outcome (HealthIT, 2013). However, nurses may not be able to achieve these various tasks without the education needed to utilize EHRs. Practice leaders should be prepared to pilot

process changes and make adjustments as needed. Lastly, innovative solutions should be encouraged to make the changes more efficient (Sensmeier, 2012). Another point to take into consideration is the advent of new technologies for diagnostics, assessments, and documentation, when facilities start to change to EHRs.

Practice leaders who are often champions of change must communicate that they understand the practice environment and the need for the new technology. They must also communicate how technology will impact both patients and the practice and, more importantly, how change and transformation will impact each staff member's day-to-day job (HealthIT, 2013). The points and principles of change can then be tailored so that transforming the practice through technology and associated updates is a positive experience (HealthIT, 2013). This educational project has the ability to be generalized to other practice settings where EHRs are being implemented.

Definition of Terms

The use of EHRs has been associated with terms such as EHRs, workflow, meaningful use, quality improvement, ill-adaptation, and usability. As a result of these multiple terms, it was necessary to define common terms used for this DNP project.

1. Electronic Health Records (EHRs) - is a systematic collection of electronic health information about individual patients or populations. It is a record in digital format that is theoretically capable of being shared across different health care settings (Information Technology Encyclopedia, 2014).

2. Workflow- the sequence of industrial, administrative, or other process through which a piece of work passes from initiation to completion (Information Technology Encyclopedia, 2014).

3. Meaningful Use- Is using certified electronic health records to: improve quality, safety, efficiency, and reduce health care disparities through engaging patients and families, improve care coordination, and population and public health (Information Technology Encyclopedia, 2014).

4. Quality Improvement- Systematic and continuous actions that lead to measurable improvement in health care services and the health status of targeted patient groups (Information Technology Encyclopedia, 2014).

5. Ill-adaptation- Showing or resulting from a lack of the ability to adjust to new or changed circumstances (Information Technology Encyclopedia, 2014).

6. Usability- Effectiveness, efficiency, and satisfaction with which the intended users can achieve their tasks in the intended context of product use (Information Technology Encyclopedia, 2014)

Assumptions and Limitations

For this DNP project, key assumptions and limitations were identified. The first assumption was that EHRs are cumbersome and not-user-friendly. The second assumption was that inadequate EHR training compromises patient safety and increases staff nurses liability, frustration, and dissatisfaction. One limitation of this project was that it is being developed for the nurses who work for one specific healthcare organization therefore it will address the educational needs of these nurses only. As a result, this educational project may not be generalized to other health care organizations without modifications. However, the development of this educational project addressed the assumptions and limitations specific to this DNP project.

Summary

In summary, it is evident that staff nurses are uncomfortable using EHR systems without adequate training and ongoing technology support. Staff nurses are aware that information technology will continue to be standard procedure; however, their resistance to the system is rooted in a lack of input as end-users of EHRs. Staff nurse are also concerned about inadequate EHR training, which has resulted in increased frustrations and dissatisfaction. The development of an EHR educational project that provided information for staff nurses on how to chart effectively has ultimately help to address this gap.

Section 2: Review of Scholarly Evidence

A comprehensive review of the literature was conducted to identify what evidence-based EHR resources are needed to provide nurses with information for effective charting. A Boolean search was conducted using the words: EHR use, HIT, meaningful use, efficiency of EHRs, effectiveness of EHRs, and workflow. The literature search included data bases such as CINAHL, PubMed/Medline, HealthIT, FierceHealthIT and HealthStar from 2004 to 2014. The ten-year time span of 2004 to 2014 was necessary to obtain current state of knowledge for this developmental project.

The primary inclusion criteria were that the articles be written in English and involved EHR development (effectiveness, application, efficiency, meaningful use, and workflow). The total number of articles yielded from the search was 106 titles and abstracts. Next, the titles and abstracts were synthesized using the primary inclusion criteria. Articles that met the primary inclusion criteria were retained. As a result, only 36 articles were synthesized for this review. The articles were mostly exploratory-descriptive and all the studies with the exception of one were conducted in the United States. From the search, I found the following themes related to EHR development: nurses' challenges with EHRs and nurses' perceptions, attitudes, and

preferences with EHRs. All these articles are on EHR educational program development. Each article will be discussed in relation to design, sample, methods, findings, and limitations.

Nurses' Challenges with EHRs

Kutney-Lee and Kelly (2011) conducted a secondary analysis of three data sources: (a) the 2006 to 2007 multi-state nursing care and patient safety (MSNCPS) survey of nurses collected in 4-large states in the US, (b) the 2008 American Hospital Association (AHA) EHR adoption database, and (c) the 2007 AHA annual survey data. The aim of this study was to examine the effect of having a basic EHR system on nurse-assessed quality of care and, patient safety. The participants for this study included 16,352 nurses working in 316 hospitals in four states. In this study, nurses were asked to report levels of agreement with statements related to frequency of lost patient information during shift changes and patient transfers. Kutney-Lee and Kelly found that medication errors are considered frequent when nurses report them as occurring more than once a month. Nurses were asked to rate the quality of care and their confidence in patient's readiness for discharge on 4-point Likert scale from "excellent" to "poor" and "very confident" to "not at all confident." When compared with nurses working in hospitals without a fully implemented basic EHR, nurses working in hospitals with a fully implemented basic EHR had a 14 % decreased rate of reporting that "things fell between the cracks" when transferring patients between units (Kutney-Lee & Kelly, 2011). Further, Kutney-Lee and Kelly found a 25% decreased rate of reporting that actions of hospital management showed that patient safety was a low priority; an 18% decreased rate of giving their unit a poor grade on patient safety; and a 17% decreased rate of reporting that they were not confident in patients readiness for discharge (Kutney-Lee & Kelly, 2011).

Thus the implementation of a basic EHR system shows promise with improved and more efficient nursing care. Limitations of the Kutney-Lee and Kelly (2011) study included a small sample and the inclusion of the American Hospital Association EHR adoption database that distinguishes "all" or "some" units with adoption. Moreover, the study could not examine unit-level associations due to the nature of the survey.

Henriksen, Battles, Keyes, and Grady (2008) conducted a non-randomized clinical trial to measure efficiency gains in turnaround times with the implementation of EHR computerized provider order entry (CPOE) system. In this study, pre-CPOE and post-CPOE turnaround times were measured for orders placed in laboratory, radiology, and pharmacy. The pre-CPOE group included a convenience sample of 240 patients with a total of 1,420 orders (laboratory $N = 340$; radiology $N = 490$; pharmacy $N = 590$). The post-CPOE group included 241 patients with a total of 2,390 orders (laboratory $N = 750$; radiology $N = 680$; and pharmacy $N = 960$). Turnaround times for laboratory orders decreased from 142 minutes to 65 minutes, radiology orders turnaround times decreased from 31.0 hours to 11.9 hours, pharmacy orders turnaround times decreased from 44 minutes to 7.3 minutes (Henriksen, Battles, Keyes, & Grady, 2008). Limitations of this study were that the data were obtained by impressions and perceptions about the problem with just one computer system, the sample was non-randomized, and the study was conducted at one hospital.

Fuller (2009) conducted a review of literature to determine if the use of EHRs improved nursing documentation. There were 12 studies that met the inclusion criteria; nine were qualitative and three were anecdotal reports from nurses working in 40 hospitals across the United States. Findings from the literature review revealed that an estimated 50% of nurses' time is spent on documentation. This documentation has evolved to provide effective communication

between health care professionals, a plan of patient care for the patients, and an avenue for compensation from health care insurances. The author concluded that the high rate of medical errors were driving up healthcare costs and were the forces behind the transformation of information management. The author suggested that disciplines such as nursing, which are information intensive, require careful investigation into the use of computers to process nursing information and that the nurses needed to feel comfortable working with computerized data. In addition, the author supported the National League for Nurses (NLN) recommendation for the development of programs to help achieve competency in nursing informatics. A limitation of the Fuller (2009) study is the fact that the literature review was limited by specific databases and recommendations were based on the NLN position statement for program development in nursing informatics.

Nurses Perception, Attitudes, and Preferences with EHRs

Moody, Slocumb, Berg, and Jackson (2004) conducted a descriptive study with 100 nurses at a large magnet hospital in southeastern Florida to assess their needs, preferences, and perceptions associated with EHR documentation. More than one third (36%) of the participants perceived that EHRs had resulted in a decreased workload. Majority of the nurses, (64%) preferred bedside documentation but reported that environmental and system barriers often prevented EHR charting at the bedside. Overall, (75%) nurses thought EHRs had improved the quality of documentation and 76% believed that electronic charting would lead to improved safety and patient care. Nurses with expertise in computer use, (80%) had a more favorable attitude toward EHRs than those with less expertise. This study emphasized that education in computer use decreased workflow, improved quality of care and increased patients' safety. One

limitation for this study was the use of an attitude scale, which may not have been sufficient to fully assess participants' attitudes.

Poissant, Pereira, Tamblyn, and Kawasumi (2005) performed a systematic review of the literature to examine time efficiency of EHRs with physicians and nurses. There were 23 studies that met the inclusion criteria; five were randomized controlled trials, six were post-test control studies, and 12 were one-group pretest-posttest design. Most of the studies (58 %) collected data using a time and motion methodology in comparison to work sampling (33%) and self-report survey methods (8%). Data were captured through continuous observation of work processes by time and motion or video recording methods. The precise estimate of nursing time spent in each activity increased the study's validity. The results did not identify a clear trend toward enhanced time efficiency despite the increased speed of computers, the availability of customized software, and the large array of user' interfaces and input devices. Among all studies, six reported a reduction in documentation time for nurses when using a computer. Among those, the relative time differences ranged from -2.1% to 45.1%. Regardless of the system (bedside or central station desktops) being evaluated, differences between paper and computer documentation systems were statistically significant. One limitation of the Poissant, Pereira, Tamblyn, and Kawasumi (2005) study was that some articles may not have been included because they were not found in the databases used.

Edwards, Chiweda, Oyinka, McKay, and Wiles (2011) conducted a study to examine nurses' attitudes towards electronic records. Participants for this study included 36 females and 37 males. Nurses were asked if they had received reconfiguration system training; 20 said they had. When asked whether they were alone or with patients when inputting data for a care plan; 4 said they were alone. When asked whether electronic records have improved one-to-one contact

with patients, only 28 of the participants indicated that it had. When asked whether in the past electronic records had affected the amount of contact time with patients in the past 12 months, 22 nurses said they had less time, 32 said they had the same time and, 10 said they had more time. When the nurses were asked about their thoughts on the most limiting factors while working on electronic records, the majority responded the lack of training for EHR adaptation and the lack of space for using portable computer devices. Based on the survey findings the authors recommended: the availability of private and quiet rooms to chart patients' assessments and that nurses to be given additional training in electronic care planning (Edwards, Chiweda, Oyinka, Mckay, and Wiles, 2011).

Carayan et al. (2011) analyzed data from nurses working in four intensive care units (ICUs) at a northeastern regional medical center, at 3 months and 12 months after EHR implementation to assess their acceptance of EHR technology. The response rate at 3-months was 72% and 51% at 12 months. Findings indicated that on average, ICU nurses acceptance of EHR technology is positive and improves over time. The results also indicated an improvement in the nurses' perceptions of EHR usability and usefulness of computerized physicians order entry, electronic medication administration record, and nursing flow sheets. The authors' concluded that the sample becomes more familiar over time with EHR technology and its various functionalities.

General Literature

Jha et al. (2009) conducted a quantitative study to examine the use of EHRs in hospitals in the United States. Participants for this study included acute care general medical and surgical member hospitals ($N = 4975$). Each participating agency completed the American Hospital Association questionnaire. Respondents were asked to report on the presence or absence of 32

clinical functionalities of an EHR system and on whether their hospital had fully implemented these functionalities in all major clinical units, had implemented them in one or more major clinical units, or had not yet fully implemented them in any unit in the hospital. There were 3049 or (n = 63.1%) responses received. Of these responses, only 12% of the hospitals had instituted electronic physicians' notes across all clinical units and only 17% had implemented computerized provider-order-entry for medications across all units. Barriers to adoption were reported as inadequate capital for purchasing computers (74%), concerns about maintenance costs (44%), resistance on the part of the physicians (36%), unclear return on the investment (32%), and lack of availability of staff with adequate knowledge in information technology (30%). This study reinforced the fact that hospitals should focus on financial support, interoperability, and training of information support staff as well as other end-users such as nurses.

Theoretical Framework

The theoretical framework for this DNP project is Ajzen's (1991) theory of planned behavior (TPB). With this theory, the individual's behavior is best predicted by one's intentions; intentions are, in turn, predicted by attitudes about the behavior, the subjective norms (a person's perceptions of important others' beliefs that he or she should not perform the behavior) encasing the execution of the behavior, and the individual's perception of their control over the behavior (Ajzen, 1991). The theory of planned behavior purports that each behavioral belief is linked to a given behavior, outcome, or to attributes derieved from learning something (Ajzen, 1991). Individuals are more likely to engage in behaviors that they believe to be achievable. The rationale behind choosing the TPB for this project is that it will predict staff nurses behaviors in relation to using EHRs. Utilizing the theory of planned behavior will allow me to determine the

receptiveness of my target population as well as the stakeholders to this project. In addition, this theory will be used in this project to understand if nurses lack of understanding on EHR usability is the result passive aggression from inadequate training of the system from their employer, previous bad experiences from using EHRs, lack of interest in using the system, and the unwillingness of key stakeholders to invest in training nurses in order for them to use the system effectively and efficiently. This theory will guide the selection of evidence-based information that will be used to develop the EHR educational project for staff nurses for effective charting. Last, this theory will allow me to predict the intensions of nurses to attend the educational project and use the functionalities of the EHR system for efficient charting.

Summary

I conducted a comprehensive literature review to identify evidence-based resources needed to develop an EHR educational project for staff nurses that will provide information on how to chart effectively to improve nursing care. Several themes were noted while reviewing the literature included in this review. The common themes noted were: nurses' challenges with EHRs and nurses' perceptions, attitudes, and preferences with EHRs. The role of the DNP student with this project will be to identify resources that will be used to develop the EHR educational project for staff nurses.

Section 3: Approach

This educational project was developed at an agency located in northern Virginia. This non-profit healthcare organization is comprised of five hospitals and employs more than 15,000 staff nurses. Inova provides health care to over fifty million people annually. This healthcare organization has been awarded best hospital in various specialties including Magnet recognition. However, the implementation of Epic EHR system in March 2012 resulted in nurses'

resignations and frustrations (Inova, 2013). This was taken into consideration when designing a

project that enhanced staff nurses knowledge on EHR usability. This scholarly project was

designed to provide a variety of educational materials and training through evidence-based

literature, EHRs weekly news update, up-to-date EHR resources from the information

technology department at IFH and in collaboration with key stakeholders of this project to

provide training to staff nurses on EHR usability.

This educational project included evidenced-based definitions and discussions of benefits

associated with effective and efficient use of EHRs as well as challenges from inefficient use of

EHRs by staff nurses. Computers and telecommunication systems have proven to be effective

management tools for health care data and communication of this information to other healthcare

professionals and their use will become the way for the future (Fuller, 2013). In addition, the

National League for Nurses (NLN) (2008) has stated that the next generation of nurses will not

be prepared to work in such technology-rich environments, hence the NLN recommendations for

the development of programs to help achieve competency in nursing informatics (Fuller, 2013).

All practicing nurses were eligible to have access to this educational project. Practicing nurses at

the agency for which this project was developed were able to use this educational project once

implemented. The Theory of Planned Behavior was used to guide the development of this project

to educate nurses on how to chart effectively using EHRs. In this section, I addressed the project

design, setting, population and sampling, data collection and analysis, and the project evaluation

plan.

Project Design/Methods

The clinical question for this doctor of nursing practice (DNP) project was: What

evidence-based resources are needed to develop an EHR educational project for staff nurses that

will provide information on how to chart effectively? The focus of this project was to develop an EHR educational project for staff nurses to educate them on the functions for charting nursing assessments, documentation of patients' data, and communicating with health care providers in order to meet the objectives of meaningful use outlined by the Center for Medicare and Medicaid Services. According to Ball et al. (2011), in order for health care organizations to achieve any EHR objective, emphasis must be placed on effective leadership, an ability to effectively change processes, the means to provide resources and ongoing support to clinicians, and approaches to measure objectives and engage in ongoing turning of the application and core processes. The development of this project was achieved by: a) initially assessing the EHR knowledge base of the target population in order to provide the appropriate educational materials, b) identifying the evidence-based resources needed to educate staff nurses about EHRs usability, c) providing evidence-based resources that will enhance EHR usability to the target population, d) collaborating with key stakeholders of this project in order to provide the necessary training for staff nurses, e) determining the relevance and usefulness of the educational project by soliciting feedback from the target population and an advisory committee at the agency for which this project was developed, and f) the DNP student requested the agency to conduct annual review of the project for sustainability of the project. This will determine effectiveness and need for modification of the project. Studies have consistently shown that use of EHRs in acute care settings yields multiple benefits (HealthIT, 2013).

Feedback from staff nurses who participated in this educational project regarding their ability to document EHR charting: medications, nursing assessments, nurses' notes, laboratory and radiologic tests, communications with inpatients and outpatients' health care providers, and admission and discharge summaries will be incorporated in the final version of this educational

project. Soliciting nurses' feedback on the effectiveness of this educational project will provide information on the relevance and usefulness of the educational project designed for staff nurses.

Setting, Population, and Sampling

The setting of this scholarly project was a 950-bed hospital located in northern Virginia. This facility employs over 2,000 registered nurses. The population for this project was all practicing staff nurses in hospitals that will be implementing Epic EHR systems. The sample for this project was nurses employed at the agency for which this project was developed.

Data Collection and Analysis

This educational project addressed nurses' lack of knowledge on EHR usability, challenges with EHRs, and attitudes, perceptions and preferences with EHRs. In order to determine the relevance and usefulness of this educational project pre and post implementation, I asked 5 nurses from the target population to review the content of the educational project and provide feedback regarding the usefulness of the educational project. The feedback from nurses addressed these areas: nursing assessments, documentation of patients' data, and communication with healthcare providers.

Project Evaluation Plan

In order to determine the effectiveness of this educational project, a tentative evaluation plan was presented to the agency. An advisory committee consisting of the director of nursing, the director of information technology, a nursing informatics specialist, a nurse manager, and a staff nurse at the agency was recommended to review the content of this educational project within a two weeks' timeframe for usefulness and relevance prior to implementation. Feedback from the advisory committee addressed these areas: relevance of the educational project to the organization, usefulness of educational materials provided to nurses, and how well the project

conform to the quality standards established by the organization. In addition, 5 nurses from the target population were asked to review the content of the educational project and provide feedback regarding the usefulness of the educational project. Feedback from the advisory committee and the five nurses who reviewed the content of the educational project was incorporated into the final version of the educational project. This ensured that the project was in alignment with the needs of the target population. Moreover, it ensured that the educational project is meeting the purpose, goals, and objectives of this EHR training course.

For annual updates, a recommendation was made to the agency to assign a person to conduct an annual review of the project for updates. This will ensure sustainability of this educational project by the agency. See Appendix A for an outline of what was covered with this educational project.

Summary

In summary, the development of an educational project designed to educate staff nurses in acute care settings about EHRs functionalities such as entering nursing assessments, documentation of patients' data and communicating with health care providers was based on a literature review. The development of this project has enhanced staff nurses understanding of EHRs through readily available resources provided by this scholarly project and main stakeholder's willingness to provide the necessary training. An advisory committee comprised of the director of nursing, the director information technology, a nurse manager, a nursing informatics specialists, and a staff nurse conducted a content review of the educational project. An evaluation plan was developed along with the educational project. Feedback from 5 nurses regarding the relevance and usefulness of this educational project was also solicited to ensure

that this educational project was in alignment with its goals and objectives. This project

commenced once approval was granted by Walden University Institutional Review Board (IRB).

Section 4: Findings, Discussion, and Implication

Introduction

The focus of this educational project was to identify evidence-based resources that could

be used to develop an EHR educational project. The purpose of this scholarly project was to

develop an EHR educational project to educate nurses on the functions of EHRs for efficient

charting. This was a developmental project based on a comprehensive review of the literature

and collaboration with the main stakeholders of this project. This education was necessary to

assist nurses to become prepared for EHR adoption by healthcare organizations. Materials for

this educational project such as evidence-based literature on EHR usability, EHRs weekly news

updates, and up-to-date EHR resources are stored on compact disks (CDs) as well as hand-held

brochures that nurses can easily use to obtain information on Epic usability. The CDs for this

educational project were used as a component of Epic training during orientation of newly hired

nurses in the agency for which this educational project was developed. In order for this

educational project to be made available to all practicing nurses in hospitals, the CDs for this

educational project will be made available at www.amazon.com at no cost. Staff nurses have

consistently reported receiving minimal training from their employers once EHRs are

implemented (Gold, 2013). This educational project was designed to close that gap by providing

nurses resources needed for effective charting in EHRs.

Summary of Findings

The usefulness and relevance of this educational project were ascertained by obtaining pre and post implementation feedback from five nurses from the target population. In addition, the content of the educational project was reviewed by an advisory committee. The advisory committee consisted of the director of nursing, the director of information technology, a nursing informatics specialist, a nurse manager, and a staff nurse in the agency. The nurses who provided the feedback comprised of three female and two male nurses between the ages of 21 and 65 years old. These nurses had 1 to 20 years' experience in nursing and have an essential knowledge on EHR usability. The nurses were able to perform all functions in Epic as provided by this educational project and overwhelmingly agreed that their charting in Epic had improved with this educational project. In addition, nurses were concerned about frequent upgrades and customization that were being made in Epic and requested that I collaborate with the chief executive officer, the director of nursing, and the director of information technology to increase Epic training time for nurses since the current application of Epic at the agency needed more training than what was being provided by this educational project.

Findings of the advisory committee showed that they were concerned that the comprehensiveness of Epic was beyond the scope of this educational project as such, they recommended that I collaborate with the chief executive officer, director of nursing, and the director of information technology to increase Epic training time for nurses. In addition, the advisory committee commented that the project conformed to the quality standards established by the agency. The advisory committee further concurred that the project was in alignment with the objectives for meaningful use of EHR adoption by hospitals. In addition, the advisory committee decided that the project provided educational materials that were helpful in enhancing

staff nurses understanding of EHR usability. Last, the advisory committee agreed that the educational project was useful to the agency. Further recommendations by the advisory committee include: a review of the project every 6 months due to frequent upgrades and changes to the system.

This educational project provided nurses with readily available resources that they could use as quick look-up when using Epic system. As a result of the comprehensiveness of Epic and the fact that the current application of Epic in the agency was beyond the scope of this educational project, this project has also ensured future increased Epic training time for newly hired nurses from one 8-hours session to two 8-hours sessions. In addition, the project has secured ongoing information technology support for all practicing nurses in the agency for which this project was developed. Based on feedback from the advisory committee and five nurses, the chief executive officer, the director of nursing, and the director of information technology were asked to increase Epic training time for newly hired nurses from one 8-hours session to two 8-hours sessions and to provide ongoing information technology support for all practicing nurses in the agency for which this project was developed. This request was based on feedback from the five nurses and the advisory committee.

Discussion of Findings in the Context of Literature

This scholarly project sought to identify what evidence-based resources were needed to develop an EHR educational project that will educate staff nurses on the functions of EHRs for effective charting. Materials for this educational project included evidence-based literature on EHR usability, EHRs weekly news update, up-to-date EHR resources and collaboration with the main stakeholders of this project. Staff nurses were able to perform all function in Epic as provided by this educational project as evidenced by their improved accessibility of the features

and functions in Epic after the training classes. However, after the implementation of the project, staff nurses realized that the educational project was beyond the comprehensiveness of Epic system and requested that I collaborate with the main stakeholders of this project to increase Epic training time for newly hired nurses and ongoing information technology support for all staff nurses in the agency. In addition, staff nurses verbalized a concern about frequent upgrades and customizations that are being made in Epic to me after the implementation of this project. These findings were all taken into consideration for the final product.

In response to the project question, what evidence-based resources are needed to develop an EHR educational project that will educate staff nurses on the functions of EHRs for effective charting? Five nurses who attended the educational classes were asked to give a pre and post implementation feedback of the educational project. In addition, an advisory committee consisting of the director of nursing, the director of information technology, a nursing informatics specialist, a nurse manager, and a staff nurse were asked to give feedback of the educational project to determine the effectiveness of this educational project. According to the advisory committee, the project conformed to the quality standards established by the agency for which this project was developed. The advisory committee also concurred that the project was in alignment with the objectives for meaningful use of EHR adoption by hospitals. In addition, the advisory committee decided that the project provided educational materials that were helpful in enhancing staff nurses understanding of EHR usability. The advisory committee also commented that Epic system is beyond the scope of this project and requested that I collaborate with the main stakeholders of this project to increase Epic training time for newly hired nurses from one 8 hours session to two 8 hours sessions and ongoing information technology support for all staff nurses in the agency for which this project was developed.

Findings of the advisory committee contribute to the conclusions that are supported in the current literature. Data from the advisory committee described the usefulness and relevance of this educational project. This data suggested an association between nurses' ability to navigate Epic system and their knowledge of EHR usability as evidenced by their improvement in charting after the educational training. This finding is similar to research conducted by HealthIT (2013) which found that efficient utilization of EHRs by nurses will enable them to chart effectively and efficiently**.** In addition, the advisory committee requested increase Epic training time for newly hired nurses. These data suggested an association between nursing competency in EHRs to effective charting. This finding is similar to the research conducted by Menachem and Collum (2011) which found that EHR use by nurses reduced medication errors due to its capability to alert end-users about potential problems. The advisory committee commented that the project was in alignment with the objectives for meaningful use of EHRs adoption by hospitals. These data suggested an association between nurses understanding of EHRs usability to effective charting. This finding is similar to research conducted by DesRoches and Colleagues (2008) which found that nurses who worked in hospitals with EHRs were more likely than other nurses to report nursing excellence and quality improvement efforts in their workplace.

The advisory committee suggested that I collaborate with the main stakeholders of this project to provide ongoing information technology support for all staff nurses in the agency for which this project was developed. This data suggested a correlation between current EHR supports for nurses to effective and efficient charting in EHRs. This finding is similar to research conducted by Fuller (2009) that found that disciplines such as nursing, which are information intensive, require careful investigation into the use of computers to process nursing information. The advisory committee commented that Epic system is beyond the scope of this educational

project due to its comprehensiveness. This data suggested an association between frequent

changes to EHRs to the need for advance Epic training. This finding is similar to research

conducted by Gold (2013) which found that nurses who regularly use EHRs found limitation to

perform nursing assessments, documentation and communication with patients and health care

providers due to frequent changes in EHRs. Staff nurses verbalized a concern about frequent

upgrades and customizations that are being made in Epic to me after the implementation of this

project. This statement supports the need for ongoing information technology education for

nurses in order for them to stay up-to-date with changes in Epic system. This finding is similar to

research conducted by Topaz et al. (2013) which found that effective implementation of EHRs

requires regular system updates and appropriate user education. Findings of the project have a

mutual correlation to the literature that nurses need to be educated on the features and functions

of EHRs for effective charting.

<div align="center">**Implication for Policy**</div>

The need for EHR adoption by healthcare organizations in the U.S.is heightened by the

involvement of multiple government and non-governmental agencies. However, the focus of this

educational project was on policies enacted by the HITECH Act of 2009 and the Center for

Medicare and Medicaid Services. The HITECH Act of 2009 promotes adoptions of EHRs by

healthcare organizations in order to meet the government mandate for effective and efficient use

by 2015 (HealthIT, 2013). In addition, the Center for Medicare and Medicaid Services provides

financial incentives to healthcare organizations who have shown meaningful use of certified

EHR technology to improve patients' care (HealthIT, 2013). Since 2009 to 2012, EHR adoption

by hospitals has increased from 16% to 56% (HealthIT, 2013). This educational project is in

alignment with these policies to foster knowledge needed by healthcare organizations for meaningful use of certified EHR systems.

Implication for Practice

The implementation and utilization of EHRs among healthcare organizations have resulted in monumental advantages. The effective and efficient use of EHRs by nurses is significant to health care practices for multiple reasons. First, it has enabled nurses to provide care in a safer and efficient manner. Second, it has decreased the potential for medical errors caused by poor penmanship of health care providers. Third, it has allowed nurses to share patients' health information effectively among healthcare providers. Last, it has enhanced nurses ability to accurately retrieved and communicate laboratory tests, radiologic tests, and other diagnostic tests results within and outside of healthcare organizations. According to HealthIT (2013), EHR implementation has led to a cost reduction savings from $ 37 million to $ 59 million annually in large hospitals. In addition, implementations and utilizations of EHRs in practice promotes adherence to meaningful use of certified EHRs by healthcare organizations and receipts of EHR incentive payments. Healthcare organizations could invest these monies to improve the quality of patients' care.

Implications for Social Change

The attainment of EHR meaningful use among healthcare organizations has multiple challenges. According to HealthIT (2013), change provokes fear in people as well as pressure to resist change due to the belief that the proposed amendment is not in the best interest of the organization. The impact of not educating nurses on EHR usability includes but is not limited to: privacy breaches, unsafe nursing care, poor communication among health care providers, increased frustration by nurses, poor quality of patients care, and patients' dissatisfaction.

This educational project was useful for the purpose of promoting a social change. This project was designed to educate nurses on the functions of EHRs for effective charting by focusing on nursing tasks such as assessments, documentation, and communication. The resources provided by this educational project has profound implication for nurses, health care organizations, communities, society, and the world. Implications for social change include: a) decreased health care costs through effective and efficient use of EHRs, b) the ability of nurses to provide better nursing care through effective and efficient use of EHRs, and c) improved patient outcomes as a result of efficient charting.

Project Strength, Limitations, and Recommendation

The strength of this educational project is the availability of easily accessible EHRs materials provided to the nurses, increased EHR training time for newly hired nurses, and ongoing information technology support for all practicing nurses in the agency for which this project was developed. Schneider (2013) described information technology educational programs as the systematic application of scientific knowledge to practical tasks based on theoretical knowledge drawn from different disciplines (communication, education, psychology, sociology, philosophy, artificial intelligence, computer science etc.). This educational project was designed to empower practicing nurses with resources necessary for effective charting in EHRs. In addition, nurses will be able to utilize resources provided by this educational project in all healthcare organizations where Epic is implemented.

One limitation of this project was that it was being developed for nurses who work for one particular healthcare organization; therefore, it will address the educational needs of these nurses only. As a result, this educational project may not be generalized to other healthcare organizations without modifications. Another limitation of this DNP scholarly project was that

information technology is rapidly changing and as such, this project may need frequent and ongoing updates and modifications. To address this limitation, a recommendation was made to the agency to assign a person to conduct an annual review of the project for upgrades and modifications.

Analysis of Self as a Scholar

As a child, my father had instilled in me the essence of hard work and the fact that achievements come with sacrifices. These beliefs have mostly motivated and energized me when faced with challenges. From a personal growth perspective, the pursuit of the DNP degree has been time-consuming, yet it has greatly enhanced my knowledge base in ways beyond my imagination. I always knew that doctoral studies were challenging but never envisioned the did-activeness associated with the development of the DNP scholarly project. Completion of the DNP scholarly project has reinforced my belief that being focused, patient, and able to do hard work were prerequisites for personal growth.

As a scholar, I have grown exponentially through knowledge attained from blackboard postings and the enormous literature review required by my various courses and the development of this DNP scholarly project. Throughout my nursing career, I have been fortunate to work in large health care institutions, which has given me reassurance of attaining a broad base nursing experience. However, the practicum experience changed my long-held notion of having a broad base nursing experience as it provided me with more diversity and the ability to manage multiple chronic health problems. I firmly believe that the aggregate knowledge I have achieved from the DNP program has prepared me to uphold Walden's mission as a scholar of change.

Analysis of Self as a Practitioner

Practicing professional nursing has always been my goal since entering the nursing profession approximately 27 years ago. This led to my academic and career accomplishments from a certified nursing assistant to a DNP candidate. The knowledge I have acquired through blackboard interactions with my peers across the U.S. and abroad, the practicum site, and the development of my DNP scholarly project has significantly enhanced my clinical skills, interactions with patients, fellow nurses, and other healthcare providers. The journey towards earning this terminal degree has reshaped my perspective in life, increased my self-esteem, and earned me the respect of my supervisors, colleagues, and physicians that I work with in my practice. My preceptor whom I have known since 2001 commented on my growth as a practitioner. This was an accolade I truly appreciate and am proud to earn. The development of the DNP scholarly project provided me the opportunity to grow as a practitioner and to contribute to the body of nursing knowledge. In addition, the education provided by my DNP scholarly project has made a significant impact on the agency especially for newly hired nurses whose training time for Epic has been increased from a one 8-hours session to a two 8-hour sessions in order accommodate for the comprehensiveness of Epic as it is beyond this educational project.

Analysis of Self as a Project Developer

As a project developer, I initially identified a problem associated with nurses and EHR usability in my practice setting. This led to the development of my DNP scholarly project. In the process of developing this educational project, I have familiarized myself with a broad array of databases through extensive literature review pertaining to the educational project. The DNP scholarly process was extensive and extremely time-consuming. However, the knowledge I have

acquired from reviewing evidence-based literature, doing multiple revisions of the DNP project, and constructive feedback from the project's committee members amounted to an improvement in my critical thinking and writing skills. My biggest accomplishment as a project developer was the acquisition of patient and resilience because its takes these two concepts to achieve the accomplishment of this magnitude.

Analysis of Self as a Professional

Professional development is the acquisition of skill and knowledge, both for individual growth and career advancement (Zaccagnini & White, 2011). I have gained personal and professional growth through the development of the DNP scholarly project as well as ongoing DNP coursework. In addition, the experience I have acquired from the diverse and fast-paced practicum site has greatly enhanced my clinical knowledge, skills, and has provided me the tools needed to teach, develop a project, and collaboratively manage patients with positive outcomes.

Summary

The use of information technology has become a regular part of life. In order to increase patient safety and promote transparency for the care provided by healthcare organizations and care received by patients. EHRs must be utilized in all healthcare practice settings. The adoption and implementation of EHRs among healthcare organizations as stipulated by the HITECH Act of 2009 and the Center for Medicare and Medicaid Services would not be possible if staff nurses lacked knowledge on the functions and features of EHRs. This educational project contains the necessary resources to educate nurses on effective and efficient use of EHRs.

Section 5: Scholarly Product

One of the roles of the DNP student in clinical scholarship is the dissemination of a scholarly product (AACN, 2006). The final DNP product was an educational project for all

practicing nurses and contained evidence-based findings that provided information to all practicing nurses for effective charting in EHRs. This DNP project was developed based on an evidence-based literature review regarding the need to educate nurses on EHR usability to meet governmental mandates for EHR adoption by healthcare organizations by 2015. A primary reason for disseminating findings from a DNP scholarly project is to improve practice and improve health outcomes (AACN, 2006). Lastly, dissemination of a scholarly product is essential for sharing initiatives and innovations with others, provides new information to keep nurses up-to-date (Oermann & Hayes, 2011).

Project Dissemination

Publication in nursing is essential for disseminating findings of research or scholarly projects. The first choice for publication of an educational project designed to educate nurses on EHR usability is the American Nurses Association Online Journal of Issues in Nursing. This journal is a peer-reviewed, online publication that addresses current topics affecting nursing practice, research, education, and the broad health care sector. The second choice for publication of this scholarly project is the Journal of the American Academy of Nurse Practitioners. This journal is distributed to more than 36,000 nurses on a monthly basis, and it is also available on-line. These journals collectively have the greatest potential for reaching a wider audience, which may have a vested interest in this educational project.

Another way of disseminating findings from this scholarly project is by poster presentation during annual conferences at the American Academy of Nurse practitioners and the Gerontological Advanced Practice Nursing Association. Presentation of posters during these annual conferences has the potential to reach a wide audience. In addition, poster presentations target a more diverse audience including those with practice, research, and community

development interest (AACN, 2006). Another way of disseminating this scholarly project is by podium presentation at national conferences. This method of dissemination will allow the project developer to showcase the final product as well as clear any misconceptions and doubts associated with the final product.

Summary

In summary, the development of an EHR educational project for nurses that provided evidence-based information on how to chart effectively was necessary. Current evidence-based literature provided the most up-to-date resources for information technology and why some nurses are adamant about using EHR systems without adequate knowledge and training. A review of the literature was extensive and yielded mostly case studies and anecdotal reports. However, the development of this project cannot be isolated from this comprehensive literature review. My chairperson was extremely instrumental in guiding and directing the literature review process. The Ajzen (1991) Theory of Planned Behavior (TPB) was used to guide the development of this educational project. The TPB is a conceptual framework when trying to predict, understand, and change specific behaviors (Groves, Burns, & Gray, 2013).

From a review of the literature, the themes related to EHR development were: nurses challenges with EHRs and nurses perceptions, attitude, and preferences with EHRs. Each of these themes was incorporated into the development of this educational project. This educational project addressed the pressing need to provide education to staff nurses on the various functions and use of EHRs before the mandated transition occurs.

Program Evaluation Report

A program evaluation is an ongoing process that begins during program development (Hodges & Videto, 2011). The program evaluation plan was used to guide the development of

this scholarly educational project as it's outlined the purpose, goals, and objectives of the project. Since this is a developmental project, the effectiveness and usefulness of the project was determined by a pre and post-implementation feedback of five staff nurses from the target population. In addition, an advisory committee consisting of the director of nursing, the director of information technology, a nursing informatics specialist, a nurse manager, and a staff nurse at the agency were recommended to review the content of the educational project for usefulness and relevance. The information provided by this educational project is current and up-to-date. However, frequent changes in information technology, upgrades, and customizations of EHRs may necessitate periodic project review and updates. As such, this educational project will be reviewed and updated annually by a person assigned by the agency. I will recommend that the agency assigned this task to the nurse informatics specialist in the agency for which this project is being developed. See Appendix B for final developed project.

Conclusion

In conclusion, the development of an EHR educational project for staff nurses was designed to provide evidence-based information on how to chart effectively. In addition, the DNP student worked collaboratively with the main stakeholders of this project that increased Epic training time for newly hired nurses from one 8-hours session to two 8-hours sessions. This has tremendously enhanced nurses understanding of EHR usability, decreased frustration and increased satisfaction of Epic system. Ajzen's (1991) Theory of Planned Behavior was used to guide development of this project. Since dissemination of this scholarly product is an expectation of a DNP prepared nurse, the American Nurses Association Online Journal of Nursing Issues and the Journal of the American Academy of Nurse Practitioners were chosen as possible publication venues for the final product.

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Appendix A: Outline of what was covered with this educational project.

1. **Introduction to Electronic Health Records (EHRS)**

    a. What is EHR?
    b. How comfortable are you with accessing Epic?
    c. How frustrated are you about Epic system?
    d. Do you believe that understanding Epic will decrease your frustration and increase patients' safety?

2. **How to use the Epic System**

    a. How to enter nursing assessments.
    b. How to enter patients' data.
    c. How to communicate with providers inside and outside of the hospital.
    d. How to page in Epic

3. **Entering Patients' Orders in Epic**

    a. How to enter laboratories tests.
    b. How to enter radiologic tests such as X-ray, MRI, CT Scan, EKGs,
    c. How to request bedside procedures such as PICC line insertion, Mid Line insertion and paracentesis.
    d. How to enter miscellaneous nursing orders.

4. **Medication Reconciliation**

    a. How to enter outpatient medications.
    b. How to enter inpatient medications.
    c. How to enter non-formulary medications.
    d. How to list patients' allergies on the face sheet.

5. **Admitting Patients**

    a. How to chart patients' demographics.
    b. How to chart patients' vital signs including weight and height.
    c. How to chart patients' admission notes.
    d. How to enter patients' diet status.

6. **Discharging a Patient**

    a.   How to retrieve discharge instructions.
    b.   How to enter follow up for patients' primary care providers (PCP) and specialists.
    c.   How to fax patient medical record to their PCPs and specialists.
    d.   How to send transition of care summaries to unaffiliated organization.

Appendix B (Final Developed Project)

How to Login into Epic

    a. On your desktop, double-click the Hyperspace. Field will appear.
    b. Enter your users ID in the users ID field.
    c. Press the tab and enter your password.
    d. Press enter. The department field will appear.
    e. Enter your department.
    f. Press enter to log into Epic.

How to log out of Epic

    a. Click log out on the main toolbar.

What is the main toolbar in Epic?

The main toolbar is the set of buttons that appears at the top of the screen to the right of the Epic button. Using the buttons on the main toolbar, you can quickly open other workspaces, like your in-basket.

What is an activity in Epic?

An activity is simply a module that supports a particular task, such as reviewing the patient's chart or writing a progress note.

What is a navigator in Epic?

The navigator guides you through a variety of tasks, including placing orders and writing notes.

How to look up a Patient in Epic.

    a. Click on the patient station.
    b. When the patient lookup window appears, enter the patient's name or medical record number or date of birth.
    c. Click on find patient at the bottom and press enter.

    d. A list of matching patients will appear.
    e. Double-click your patient.

How to Manage your Patient Assignment in Epic.

    a. Click on **my list** to add or remove patients from **my list**.
    b. Click on the **system list** to obtain a list of patients that the system updates and maintains based on certain criteria, such as patients with a particular order, or patients who are in a particular location.
    c. Click on **all my patients** to create a shortcut to this system list in your list.

How to Create Shortcuts to Patients you are following in Epic.

    a. In the patients list, right-click a **system list** you often access such as isolation patients, and select **copy system list.**
    b. Right-click **my list** and select **past system list.**
    c. The **system list** shortcut will appear in your **my list.**

How to View Information you need on your My List in Epic.

    a. In the patient lists, highlight your **my list** and click **properties**.
    b. To add a column, select from the list on the left under "**Available Columns**" and click **Add**. A review of the column headers will appear at the bottom of the window.
    c. To remove a column, select it from the list on the right under "**Selected Column**" and click remove.
    d. To change the sequence of the column, select a column and click on the **upper** or **lower** arrow.
    e. Click **Accept**.

How to Review a Patient's Notes in Epic.

    a. Click on the appropriate note tab.
    b. Sort notes by clicking a **column header**.
    c. Filter notes by author type by clicking **filter**.
    d. Read the selected note in the pane below the list.

How to use a SmartText to Write a Note in Epic.

    SmartTexts are templates or blocks of text you can use to standardize notes documentation and reduce charting time.

    a. Enter a few letters of the SmartText name in the **Insert SmartText field.**
    b. Press enter. The **SmartText Selection** window will display a list of all available SmartTexts.

     c. Double-click on **SmartText** to insert it.
     d. Complete any **SmartLists** or **Wild Cards** that are part of the SmartText.
     e. Click **Accept** to sign your notes.

How to Review all Orders since Admission in Epic.

     a. Click on Since Admission to see all orders placed on the patient since the patient was admitted.
     b. This will show active as well as discontinued orders.
     c. Click on the order and view details in the lower pane about the selected order.

How to Add Orders to your Preference List in Epic.

     a. Place an order.
     b. Click on the preference icon next to the order.
     c. Give the order a meaningful display name, such as "Tylenol Elixir."
     d. Fill out order details that you want to appear by default when you place this order in the future.
     e. Click **Accept**.

How to Review Vital Signs and Intake and Output in Epic.

     a. Click on the arrow next to the date to select a particular date.
     b. Click on the + next to the category.
     c. View graphs of the patient's vital signs and intake and output by clicking **3-Day or 7-Day**.

How to view Patients Laboratory Results in Epic.

     a. Select a result in a tree on the left to view its results.
     b. Search for a particular result by typing all or part of its name in the search field.
     c. Click view to see only certain set of data.
     d. Click **Use Date Range Wizard** to change the timeframe of the results that appear.
     e. Click **Legend** to get an explanation of the different icons in results review.

How to View Patients Radiologic Results in Epic.

     a. Click on chart review.
     b. Click on imaging and then locate the test to be reviewed.
     c. Double-click on the test to display the results.

How to view Current Patient Encounter in Epic.

a. Select encounter you wish to view.
b. Click on the link of scanned documents and the document viewer will be launched.
c. Click the media tab to view all documents from all of the patient's visits.
d. Double-click on the document you wish to view and viewer will be launched.

How to Enter Patients Orders in Epic.

a. On the SmartSet Orders section, click on add orders.
b. Scroll down to the additional admission orders field and search for your orders.
c. Once the orders are located, click on the individual orders and then click on submit.

How to Admit a Patient in Epic.

a. In the patients chart, click on the admission activity tab to open the admission navigator.
b. Click on the **problem list**.
c. Click on **principal problem/s**.
d. Click on the relevant problem/s to the current admission and then click on **yes**.
e. Click no for problems that are not related to this admission.

How to Complete Medication Reconciliation in Epic

a. On the admission navigator, select **Order/Med Rec**.
b. Click on **continue** to mark several orders at once.
c. If you need to change orders that you have selected, click on **modify** and input the changes then click **Accept**.
d. View all orders for accuracy and then click **Accept** to finalize orders.

How to Update the Patients' Allergies in Epic.

a. Open the allergies section of the admission navigator and confirm with the patient that the list is accurate.
b. If needed, enter a new allergen or agent in the "**add field**" and press enter.
c. Enter the allergy or contraindication detail, along with any comments, such as more details on the reaction, and click **Accept**.
d. Select review complete.

e. Click on "**mark as reviewed**" to indicate that you have reviewed all the allergies.

How to Transfer a Patient to another Unit in Epic.

a. Open the transfer navigator.
b. Review current orders.
c. Reconcile home medications by clicking **resume**.
d. Place the transfer order on the order entry tab and then click on place order.
e. Review orders and click on **sign orders**.

How to Discharge a Patient in Epic

a. Open the discharge navigator tab.
b. Click on **Orders/Med Rec**. section of the navigator to reconcile all discharge medications.
c. Click on the patient follows up tab and input names of physicians or clinics to be followed up. This will electronically transmit patients' medical records to all physicians and clinics involved in patient's care.
d. Click on **discharge instructions** tab and type the patient admission diagnosis then search to populate the instructions.
e. Click on the **discharge summary** tab to populate the discharge summary template and then write your discharge summary notes.