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Structured Education Using Scenario-Based Training in Cerner Electronic Medical Records

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Abstract

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MSN, MBA, University of Phoenix

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Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Nurse practitioners are trained to use the electronic medical record (EMR) to document. Documentation in the EMR is often found to be incomplete, inaccurate, and unreliable, which affects the quality of care and patient safety outcomes. The purpose of the project was to improve the efficiency and effectiveness of nurse practitioners' documentation in the EMR. Malcolm Knowles' adult learning theory was used in this project to develop the education program. Kirkpatrick's training evaluation model was also used to analyze and evaluate the project. The study population included 5 primary care nurse practitioners in an ambulatory care setting using Cerner EMR. The practice-focused question was centered on whether a structured scenario-based training in Cerner would improve the completeness, accuracy, and reliability of EMR documentation. The 5 nurse practitioners were educated using structured, scenario-based training in EMR. The Cerner Advance database showed that there was an average decrease of two seconds in the documentation post-education when compared to the documentation time pre-education. Results for patient quality outcomes indicated that 2 out of 3 quality measures were performed above the national mean. The implication of this study for positive social change includes providing structured education using scenario-based training to help nurse practitioners provide quality care and promote better patient outcomes.

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Dedication

I would like to dedicate this project to Ms.Linda Duncan and Edward Labenz.

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I would like to express my sincere gratitude to Ms. Linda Duncan, Dr. Burton, and Dr. Baker for providing me their invaluable support, guidance, and encouragement throughout this project.

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Section 1: Nature of the Project

Introduction

The outcome of patients health care depends on electronic medical record (EMR) documentation on multiple levels. EMR documentation is used to analyze and monitor patient safety, quality of care, incentives, and reimbursement. EMR documentation supports patient safety and quality by enhancing communication between health care providers meaning complete, accurate, and reliable documentation. However, a problem in the practice is that the nurse practitioners are educated on how to use the EMR to document instead of being educated on how to incorporate the EMR into their workflow. According to the leadership at the site in this study, documentation has currently often been found to be incomplete, inaccurate, and unreliable. Thus, the practice-focused question was centered on whether a structured education using scenario-based training in Cerner would improve the efficiency in the EMR while improving the documentation. The study population included five primary care nurse practitioners in an ambulatory care setting using Cerner EMR who were educated on EMR scenario-based training. Data were collected using Cerner Advance, a database that monitors the efficiency of the provider's' pre- and post- education to measure the time spent documenting per patient. The Kirkpatrick model was used to analyze and evaluate the education model. The goal for all individual providers is to ensure that the documentation in the EMR is efficient. The EMR features such as chart alerts, care management reminders, messages, electronic documentation, and viewing, prescriptions and test orders supports nurse practitioners in promoting patient safety and quality. Without appropriate guidelines and education, the

EMR can create documentation integrity concerns. A process must be in place to ensure the integrity of the information in the EMR that will promote and support complete, reliable and accurate documentation (American Health Information Management Association [AHIMA] Work Group, 2013). The findings from this project assisted the organization in developing a key training module for the health care providers resulting in better documentation.

Problem Statement

The goal for health care organizations is to provide high-quality care to patients. Provider documentation in the EMR is used to measure the quality of care. Therefore, the documentation needs to be accurate and consistent. Information technology has an increased potential for improving the quality of patient care (Ovretveit, Scott, Rundall, Shortell & Brommels, 2007). However, although EMR has many advantages, health care has not been able to use its fullest potential (Overtveit et al., 2007). Hospital administrators, policymakers, and researchers are increasingly depending on the data collected from the EMR for reimbursement, research, and tracking the quality of care. Some of the essential tools that the EMR includes for quality improvement are the care management reminders, messages, electronic documentation and, prescription and test ordering (Miller, & Sim, 2004). Despite the numerous benefits of EMR, research has not addressed differences in knowledge, operating skills, satisfaction, and usage levels among the medical professionals that impede the quality of care delivered (Shachak, Hadas,-dayagi, Ziv & Reis, 2009). For instance, some nurse practitioners are spending a longer time documenting compared to their peers and continue to perform low on quality

measures. Individual documentation by multiple health care professionals in different sections of the medical record can be time-consuming, and, can cause duplication and potentially conflicting documentation which leads to unsafe patient outcomes (Törnqvist, Törnvall, & Jansson, 2016). Research has shown that structured documentation contributes to a more complete and reliable EMR record (Miller & Sim, 2004; Vuokko, Makela-Bengs, et al., 2016), which can improve the capturing of data to measure quality performance. The EMR improves management of chronic diseases, prevention and screening targets that demonstrate improved quality measures (Manca, 2015). EMR allows health care professionals to pursue more robust quality improvement programs but this is dependent on the physicians' use of EMR (Miller & Sim, 2004).

Thus, a structured education using scenario-based training can significantly improve the field of nursing by educating the nurse practitioners to document accurately, clearly, concisely, and in a timely manner which promotes quality and patient safety.

Purpose

The purpose of the DNP project was to improve the efficiency and effectiveness of the EMR documentation. There is a gap in nursing practice because the nurse practitioners are educated on the use of the EMR to document instead of being educated on how to incorporate the EMR into their workflow. The current training strategy does not include how to incorporate the EMR in the provider's workflow during a patient encounter. The focus of this project was on training nurse practitioners to use a structured education with scenario-based training. The training was undertaken in the context of the nurse practitioners documenting clearly, concisely and in a timely manner.The practice-

focused question was centered on whether a structured education using scenario-based training in Cerner would improve the efficiency in EMR while improving the completion and reliability of the documentation. The efficiency of the documentation was measured based on the decreased amount of time spent documenting in EMR per patient.

Scenario-based training was developed from nurse practitioner concerns at the study site. Nurse practitioners expressed an increased frustration using the EMR to document the required elements for quality care, which included a) the increased amount of time to document, b) the increased number of clicks in the EMR to document c) navigation out of workflow multiple times to document the required elements, and d) lack of knowledge on how to use chart alerts in their decision-making. Thus, the structured education included a scenario: a) to develop the providers knowledge on how to navigate and document within the EMR quickly and efficiently with fewer clicks and b) to avoid the number of times to go out of workflow to document the required elements and c) to improve knowledge on how to use the chart alerts in their decision making to provide quality and safe care.

The Clinicians vary significantly in how they document progress notes (Miller, & Sim, 2004). Some clinicians dictate their notes and import it into EMR, some type their progress notes into unstructured text boxes, and some providers hand write their progress notes and scan into the EMR. The use of a scenario-based structured education standardized the training method. The nurse practitioners in this study benefited learning from scenario-based structured education the necessary skills and techniques to document in the EMR.

Nature of the Project

The Cerner educator and I met with five primary care nurse practitioners one on one at their convenience in their office. A laptop was used by the educator to demonstrate documentation in the EMR using the developed scenario. I met with the Cerner Educator to develop the structured education prior to the training. The educational materials were reviewed by the Regulatory Department and the Quality Department. The education material was edited based on their feedback to meet all the state and federal regulations. After a 4 week period, the Ambulatory Quality Department staff performed chart audits for compliance and abstracted the Accountable Care Organization (ACO) quality measures for a sample of 30 EMR records for each provider. The efficiency of the documentation was measured using the Cerner Advance Database to measure the time spent documenting for each patient pre- and post- education.

The difference in each provider's knowledge, as well as their differing computer skills, typically results in the unsuccessful use of EMR. Duplicate documentation, increased demands on the time to document the required elements, and failure to use the chart alerts for decision- making compromises patient safety and the delivery of care. Using a scenario-based structured education improved providers' knowledge related to the EMR, especially how to document in the EMR clearly, concisely and in a timely manner.

Significance

The EMR allows providers to pursue a quality improvement program that is highly dependent on the physicians' use of EMR (Miller & Sim, 2004). Studies have

shown that technology has been an essential element in providing safe and quality care to patients promoting the evidence-based practice of medicine (Miller, & Sim, 2004). Despite the benefits and the financial incentives, providers use the EMR at a minimum level to document patient problems and, allergies as well as to prescribe medications (Miller, & Sim, 2004). This use of the EMR, improves the legibility and accessibility; however, documentation templates can lead to better care (Miller & Sims, 2004). The embedded prompts remind the providers to ask patients about their symptoms and assist with ordering appropriate tests and performing other preventive or disease management activities (Miller & Sims, 2004). Using the chart alerts and structured templates has effectively reduced duplicate documentation and helped clinicians provide quality and safe patient care.

A scenario-based EMR training curriculum can enable providers to better document aspects of patient care delivery. The EMR has been described in the literature as an essential component of health care delivery transformation but many EMR system installations fail because of the lack of end-user acceptance. Many providers are skeptical about the claims of better clinical efficiency because of personal experiences with information systems that have increased the demand of time on clinical documentation. In this study, a structured scenario-based EMR training program improved the provider's documentation and increased the end-user acceptance by decreasing the frustration caused by the demand.

Summary

Unreliable and inaccurate EMR documentation is the problem compounded by the increased length of time the provider takes to chart. This study was focused on whether structured education using scenario-based training in Cerner can improve the efficiency in the EMR as well as accuracy of documentation. Chart audits were undertaken to assess documentation for accuracy and reliability**.** The Cerner Advance Database was used to measure the time spent documenting for each patient pre- and post- education. A result of the collected data demonstrated positive outcomes.

Section 2: Background and Context

Introduction

The problem addressed in this study is that the nurse practitioners are educated on how to use the EMR to document instead of how to incorporate the EMR into their workflow. At the study site, documentation has been found to be incomplete, inaccurate, and unreliable, which needed to be addressed for quality and patient safety outcomes. The practice-focused question was centered on whether a structured education using scenario-based training in Cerner would improve the efficiency in EMR as well as documentation. The purpose of this project was to improve the efficiency and effectiveness of the documentation in EMR to promote better patient outcomes, patient safety, and quality care. Adult learning theory, The Kirkpatrick model, the relevance of nursing practice, background, the role of the DNP and the role of the team will be discussed in this section.

Theory and Model

The development of the training program was based on Malcolm Knowles' adult learning theory. *Learning* is defined as the change in behavior that is relevant and permanent, which may have resulted from experience (McEwen & Wills, 2014). Learning how to document in EMR requires a permanent change in behavior to view and approach the documentation differently. For example, using the chart alerts in the EMR should be used as clinical decision support rather than checking the boxes to meet compliance. Changing the behavior to use a structured flow eliminates documentation duplication and results in time used more efficiently.

Because nurse practitioners are adults, adult learning theory was appropriate to use for this project. Malcolm Knowles claimed that adult learning is a process model instead of a content model (McEwin, & Wills, 2014). The six (6) assumptions of adult learning theory are:

1. the adults need to know why they need to learn something
2. as people mature they move from being dependent to being self-directed
3. previous experience can serve as a rich resource
4. circumstances or situations cause readiness to learn
5. as a person matures application of knowledge changes to immediacy and
6. adults are motivated by a desire to solve practical problems immediately. (McEwin, & Wills, 2014).

The nurse practitioners in this study understood that they needed to learn how to document in the EMR to provide safe and quality patient care. The nurse practitioners were self-directed by being allowed to make their own decision on what to document in the EMR. The nurse practitioners' previous experience on the use of EMR was a resource on the functionality of the EMR but it required knowledge on how to best use the EMR. The demand by the organization and Centers for Medicare and Medicaid (CMS) changed the provider's' requirements for documentation, which motivated the nurse practitioners to learn the process of documentation.

In addition to the adult learning theory, the Kirkpatrick model was chosen to evaluate providers on the specific training model used. The Kirkpatrick model was developed by Dr. Donald Kirkpatrick in 1954 and evolved in later years (Kirkpatrick &

Kirkpatrick, 2016). The three reasons to evaluate training programs are: a) to improve the program, b) to maximize the transfer of learning to behavior and subsequent organizational results, and c) to demonstrate the value of training to the organization (Kirkpatrick & Kirkpatrick, 2016). The Kirkpatrick model consists of four levels: a) Reaction, b) Learning, c) Behavior, and d) Results (Kirkpatrick, 2016). During Level 1, the participants found the training favorable, engaging and relevant to their job (Kirkpatrick & Kirkpatrick, 2016). The first level, the reaction of the providers was evaluated using a post-test after the structured scenario-based training in EMR, which showed that all five nurse practitioners found the training relevant and appropriate to their job. The second level, learning was evaluated comparing the pre-test and post-test results that were used during the EMR training. All five nurse practitioners scored 100% percent on the post-test. During Level 3, participants apply what they have learned during training (Kirkpatrick & Kirkpatrick, 2016). Behavior was evaluated by the decreased documentation time per patient in the EMR using the Cerner Advance Database, which showed 2 second decrease on average in the documentation time. Finally, during Level 4, the results help evaluate the degree to which the targeted outcomes arise as a result of the training program (Kirkpatrick & Kirkpatrick, 2016). The results on the performance of the ACO quality measures were used to evaluate the targeted outcomes. The performances of two out of three ACO quality measures were above the national mean.

Relevance to Nursing Practice

It has been estimated that 44,000 to 98,000 Americans die each year because of medical errors (Institute of Medicine, 1999). Medical error is the failure from not following the intended action plan or using the wrong action plan (Institute of Medicine, 1999). The Institute of Medicine in 2006 reported that patients are exposed to a medication error each day of their stay, and computerized physician order entry reduces the medication error by 80% (Li, Zhang, Chu, Suzuki & Araki, 2012).

EMR promoted standardized documentation, leaving less room for errors. Subject, Object, Assessment, and Plan notes is a documentation method employed by health care providers has used paper and has been. An integral part of a nurse practitioners' practice workflow. But paper medical records are often difficult to understand mostly because of illegible handwriting, and paper records often have insufficient space for health care providers to write the necessary information. However, EMR can support patient safety (Li et al., 2012). EMR implementation can save more than $81 billion by improving health care efficiency and safety (Hillstad et al., 2005). The EMR allows the nurse practitioners to use additional tools such as computerized physician order entry, chart alerts, and messages to improve documentation. Information regarding whether the order for treatment was complete, when it was completed, and who completed it are all information that can be monitored and analyzed to improve patient safety and quality (Li., 2012). Previous strategies to improve have been using a structured- education to improve documentation (Saranto & Kinnunen, 2009), and using the decision support tools linked to EMR that can provide practice guideline information

to ensure accurate, complete and reliable documentation (Anderson, 2004). In this study, adult learning theory was used to develop a training program for nurses that can lead to self-directed, lifelong learners who understand the EMR can benefit from technology.

Local Background and Context

In 2012, 71.8% of office-based providers reported using an EMR system, representing an increase from 34.8% in 2007 (Hsiao, & Hing, 2014). In 2012, 39.6% of practices in offices had fully functional EMR systems, up from 11.8% in 2007 (Hsiao, & Hing, 2014). Although there was a significant increase in the use of a fully functional EMR system, there was no significant difference in the adoption of the EMR system. The length of stay in hospitals adopting EMR experienced 0.11 shorter days and 0.182% lower 30-day mortality rates (Lee, Kuo & Goodwin, 2013). A barrier to adopting the EMR system is frustration and lack of acceptance by the end user. Using scenario-based training kept the providers engaged due to the interaction of using real cases, therefore, increased the acceptance of EMR adoption by the end user. The structured training program using scenario-based education enabled the nurse practitioners to adopt the EMR system and use it to its fullest potential resulting in high quality, safe patient care.

The mission of the organization is to provide high-quality care to patients. Also, the organization is part of the ACO. An ACO is a group of providers and other health care staff who come together to give coordinated quality care to the patient (CMS, 2017). The coordinated care requires improved communication among health care staff. The goal of coordinated care is to ensure that patients receive the right care at the right time, thus decreasing medical errors (CMS, 2017). The coordinated care depends upon

effective communication. Effective communication includes clear, concise and timely documentation in the EMR.

Definition of Terms

Electronic Medical Record (EMR) – The EMR is an electronic record of health-related information on an individual treated, clinically managed, or consulted by clinicians and ancillary staff within a health care organization (Thompson et al., 2009).

Accountable Care Organization (ACO) - ACO are groups of doctors, hospitals, and other health care providers, who come together voluntarily to give coordinated high-quality care to their Medicare patients (CMS, 2017). ACO quality measures include: 1) Body Mass Index (BMI) and follow- up for patients whose BMI is out of range 2) Tobacco screening and cessation intervention for patients who are smokers and 3) Depression Screening for all patients who are eighteen (18) years and above and follow-up documentation for patients whose PHQ-9 score is above 9.

Role of the DNP Student

My role was to understand the workflow of the primary care nurse practitioner by observing the process of the workflow in an ambulatory setting. Also, I learned the Accountable Care Organization quality measures and *Meaningful use* requirements that are required by the Center for Medicare and Medicaid (CMS). After the process was identified, I developed a scenario- based structured education using Cerner EMR incorporating all of the required elements from a clinician perspective and the CMS requirements. I used a knowledge test for the nurse practitioners; a pre- and post-test on

the incorporation of the EMR into their workflow. I measured the provider's efficiency using Cerner Advance for the baseline data. I prepared the educator on how to use the structured education material to instruct the providers. After 4 weeks of structured scenario-based education, I provided instruction to the staff on the methods to collect the data to abstract the quality measures to evaluate the performance of quality. I gathered data pre- and post- education to measure the nurse practitioners' knowledge on incorporating the EMR into their workflow. The efficiency of the documentation were analyzed by the documentation time in EMR. The effectiveness of the documentation in the EMR were measured based on the accuracy of the documented ACO quality measures. The quality measures that were analyzed for the accuracy of the documentation were: a) Body Mass Index (BMI) and follow- up for patients whose BMI is out of range, b) Tobacco screening and cessation intervention for patients who are smokers and, c) Depression Screening for all patients who are 18 years and above and follow-up documentation for patients whose PHQ-9 score is above 9.

Role of the Project Team

The project team consisted of the Cerner educator at the organization, Regulations and Regulatory Analyst, Director of Ambulatory Quality, Director of Cerner Education, and the Quality staff members of the ambulatory Setting. The Cerner educator and I met to write the appropriate scenarios that utilized all the important functionalities and intricacies in the Cerner EMR. After the scenario was defined, I and the educator outlined the best documentation workflow to educate the providers. The documentation workflow was tested on a test patient in the EMR. The outlined workflow was reviewed by the

Regulations and the Regulatory Analyst and the Quality staff members for feedback. I and the Cerner educator edited the outline to meet all the standards required by the state and federal regulatory agencies to provide quality and safe care. I met with the Ambulatory quality staff members to explain the purpose of the project and their role in the project. After the structured scenario-based education, the Ambulatory quality staff members gathered the data on a sample of 30 patient charts for each nurse practitioners on the quality measures required by ACO. An Excel spread sheet was used by the Ambulatory quality staff members to collect and input the data. Also, the Ambulatory quality staff members gave feedback on the utilization of the chart alerts and the quality of documentation for clarity and consistency. The quality dashboard for the ACO measures for each provider was submitted to me by the Ambulatory quality staff members. After the project was completed, the results of the quality measures and the results from the Cerner Database on time spent per patient pre- and post- education was shared with the Director of Ambulatory Quality, Director of Education, Cerner educator and the Ambulatory quality staff. I will plan to propose the developed scenario-based structured education to be utilized to train all primary care providers during their onboarding.

Summary

The increased demand for utilizing the EMR has grown. A structured education using the scenario-based training is necessary to meet the demand. Adult learning theory was the basis for developing the training curriculum. To develop the structured education I and the Cerner educator identified the appropriate scenario to educate on all basic

functionalities and intricacies in Cerner. The overall learning material was reviewed by the Compliance, Regulatory and Ambulatory quality staff members. The Ambulatory quality staff members gathered the nurse practitioners' performance by abstracting the data from the charts. The time spent per patient in the chart pre- and post- education were collected using the Cerner Advance. The Kirkpatrick model was used to evaluate the training program. The results of the data can be shared with the leadership team to potentially implement the scenario-based structured education to train during onboarding the primary care providers for improved and standardized documentation process.

Section 3: Collection and Analysis of Evidence

Introduction

Nurse practitioners are not being educated on how to incorporate the EMR into their workflow. The current EMR training strategy at the study site does not involve how to incorporate the EMR in the workflow during a patient visit. Therefore, the focus of this project was to train the nurse practitioners using a structured education scenario-based training to help them improve documentation. The education training material was based on the Adult Learning theory. The Cerner educator and I collaborated to develop the structured education using a scenario, where all the basic functionalities and intricacies were used to demonstrate clear and concise documentation.

Practice- Focused Question

The current Cerner EMR training for the primary care nurse practitioners includes online modules. The online modules are short videos on how to document in Cerner EMR. This method of education prevents any provider from interaction with the Cerner EMR, hindering learning the EMR. The practice-focused question was centered on whether structured education using scenario-based training in Cerner would improve the efficiency in EMR while improving the documentation. A scenario-based structured education allows the provider to interact with the Cerner EMR and engages them to learn the intricacies of the EMR.

It is essential to understand the intricacies of technology for effective and efficient documentation with EMRs (Nicklaus, Kusser, Zessin, & Amaya, 2015). Incorporating clinical workflows into training must be given importance (Lowes, 2004). A structured

education using scenario-based training on EMR can provide safe and quality patient care based on evidence-based practice and improved documentation.

Sources of Evidence

A comprehensive exploration of research databases through Walden University online library was used to find research articles about the EMR training. Most of the EMR- related literature is from sources published within the last 10 years. All information on EMR education was used to gain an understanding of successful EMR implementation and related training programs. The research literature reviews included peer-reviewed scholarly journal article, books, websites, and archived information. The keywords that were used to search for literature review were: *EMR training, EMR education,* a *history of EMR adoption, federal government EMR initiatives, and barriers to EMR implementation, adult learning theory, and Kirkpatrick Model.*

The study population included five primary care nurse practitioners in an ambulatory care setting using Cerner EMR. Each nurse practitioner was educated on EMR using scenario-based training. Data were collected using Cerner Advance, a database that monitors the efficiency of nurse practitioners' pre- and post- education to measure the time spent documenting per patient. Patient quality outcomes were measured based on the quality performance of ACO requirements and, the Kirkpatrick model was used to evaluate the training program. The collection and analysis of this evidence helped support the fact that the scenario-based structured education resulted in complete, accurate, reliable and timely documentation. The performance on ACO quality measures were evaluated for accuracy and reliability of the documentation.

Analysis and Synthesis

Before the scenario-based training, I used the Cerner Advance Database to collect the information on the time spent per patient for each of the five providers. The data in Cerner Advance displayed as a dashboard. Each nurse practitioner were searched in the search engine of the Cerner Advance Database and the information on time spent per patient for the previous month were collected and documented in an Excel Spreadsheet.

The Ambulatory quality staff used a separate Excel workbook to abstract the ACO quality measures for each nurse practitioner for a sample of 30 patients. The Excel spreadsheet identified each patient with a number to protect patients' privacy. The Excel spreadsheet included information on the documentation related to the ACO quality measures such as BMI and follow- up, tobacco screening and cessation intervention for patients who were smokers, and depression screening and follow-up occurred in the chart. The quality dashboard were developed based on the percentage of the ACO quality measures met. The percentage was calculated by dividing the number of patients who had the documentation of quality measures in the chart divided by the total number of patients. This percentage for each provider were collected and presented to me by the Ambulatory quality staff. The Ambulatory quality staff also shared their input on the usage of chart alerts and the clarity of documentation for each provider.

A pre-test was used to test the nurse practitioners' knowledge on incorporating the EMR into their workflow. A post-test was used to measure the knowledge acquired during the training. The time spent per patient documenting in the EMR were collected

pre-and post- EMR training to evaluate the efficiency of the documentation. Finally, the quality measures were obtained pre- and post- EMR education to measure the outcomes.

Summary

Unreliable and inaccurate EMR documentation is a major problem compounded by the length of time the provider takes to document. The practice focused question was centered on whether structured education using scenario-based training in Cerner improve the efficiency in the EMR while improving the documentation. The purpose of this project was to have the nurse practitioners to improve their documentation to be more efficient and more effective. Adult learning theory was the basis for developing the training curriculum. The Kirkpatrick model was used to evaluate the training program. Chart audits were undertaken to assess documentation for accuracy and reliability**.** Documentation efficiency was measured using the Cerner Advance Database. A result of the findings can demonstrate positive outcomes. The results of the data will be shared with leadership to recommend the scenario-based structured education to train the providers for an improved and standardized documentation process.

Section 4: Findings and Recommendations

Introduction

The problem identified in the practice was that the nurse practitioners were not being educated on how to incorporate the EMR into their workflow. The practice-focused question was centered on whether a structured education using scenario-based training in Cerner would improve the efficiency in EMR while improving documentation.

Adult learning theory was the basis for developing the training curriculum, and the Kirkpatrick model was used to evaluate the training program. Chart audits were performed to assess documentation for accuracy and reliability**.** Documentation efficiency was measured using the Cerner Advance Database.

The study population included five primary care nurse practitioners in an ambulatory care setting currently using Cerner EMR. Each nurse practitioner was educated in EMR using scenario-based training. Data were collected using Cerner Advance, to measure the time spent documenting per patient pre- and post-education. Patient quality outcomes were measured based on the quality performance of ACO requirements.

Findings and Implications

The Ambulatory quality staff used separate Excel workbooks to abstract the ACO quality measures for each nurse practitioner for a sample of 30 patients. The Excel spreadsheet consisted of documentation related to the ACO quality measures such as BMI and follow- up, tobacco screening and cessation intervention for patients who are smokers, and depression screening and follow- up in the chart. The percentage was

calculated by dividing the number of patients who had the documentation of quality measures in the chart, divided by the total number of patients. This percentage for each provider was collected and presented to me by the Ambulatory quality staff. The documentation time per patient, per chart was collected using the Cerner Advance Database pre and post education for all 5 nurse practitioners (see Table 1). The Cerner Advance Database collects the average documentation time per patient, per chart for each provider during a 1 month period. The pre-education documentation time was collected for the month of September 2018. The structured education was provided the last week of September 2018. The nurse practitioners were given the month of October 2018 to apply the learned workflow in the EMR. The post education documentation time was collected for the month of October 2018.

Table 1

Documentation Time Per Patient Per Chart Pre-and Post-Education

	September 2018 (Pre-Education)	**October 2018 (Post Education)**
Nurse practitioner 1	06:51	06:59
Nurse practitioner 2	04:58	05:11
Nurse practitioner 3	01:49	01:34
Nurse practitioner 4	01:11	01:29
Nurse practitioner 5	01:23	00:47
Average Time	***3:06***	***3:04***

The average time spent documenting per patient, per chart pre-education for all five (5) nurse practitioners was three (3) minutes and six (6) seconds. The average time spent documenting per patient, per chart post education was three (3) minutes and four

(4) seconds. The documentation time decreased two (2) seconds following a structured education scenario-based training.

Table 2

Percentage of ACO Quality Measures Post-Education

	Tobacco	BMI	Depression Screening
Nurse practitioner 1	93%	87%	100%
Nurse practitioner 2	93%	76%	90%
Nurse practitioner 3	100%	83%	80%
Nurse practitioner 4	93%	53%	73%
Nurse practitioner 5	83%	20%	62%
Average	***93%***	***65%***	***81%***

The ACO national mean for documenting tobacco measure is 91% (CMS, 2017), and the average performance percentage for documenting tobacco measure by the Nurse practitioners was 93%. The ACO national mean for documenting BMI and follow- up is 74% (CMS, 2017). The average performance percentage for documenting BMI and follow-up by the nurse practitioners was 65%. The ACO national mean for depression screening and follow up was 54% (CMS, 2017). The average performance percentage documented by the nurse practitioners for depression screening and follow-up was 81%. Two of the three measures the nurse practitioners documented were above the national mean.

The nurse practitioners were all administered the pre-test. One out of the five nurse practitioner scored 100%. Post-test, all five nurse practitioners achieved 100%. (see Appendix B.)

Each nurse practitioner completed a course evaluation, and 100% strongly agreed that the pace of the class was good for them. Eighty percent strongly agreed that the information presented to them was relevant to their work and their position. Eighty percent strongly agreed that attending this training assisted their knowledge in using the application in their practice. Eighty percent strongly agreed that the training helped their documentation to be compliant with all the documentation necessary for the ACO and *meaningful use* requirements. Forty percent strongly agreed that the training will help decrease documentation after hours. (see Appendix C).

The implications of the structured education using scenario-based training are that it decreased documentation time per patient, per chart and improved the ACO quality measures. Accurate, complete and reliable documentation improves patient safety and quality of care. Documentation was improved by using structured education scenario-based training in EMR. The positive social change includes better documentation that can lead to improved safe and quality care, which then leads to improved patient outcomes and decreased health care costs. However, the limitations of this DNP project included a learning curve for the five nurse practitioners because I provided education and, shortly thereafter, started collecting the data related to documentation time. The choice to begin data collection limited the nurse practitioners' ability to apply the newly learned workflow potentially impacting the results.

Recommendations

The problem addressed in this study was that the nurse practitioners at the study site were educated on how to use the Electronic Medical Record (EMR) to document instead of how to incorporate the EMR into their workflow. The current EMR training strategy does not involve how to incorporate the EMR in the workflow during a patient visit. The practice-focused question was centered on whether a structured education using scenario-based training in Cerner would improve the efficiency in EMR while improving the documentation. A solution for accurate, reliable and timely documentation would be to utilize the structured education using scenario-based training. (see Appendix A for the scenario and the developed structure incorporated within the nurse practitioner's workflow.)

Contributions of then Doctoral Project Team

The Cerner educator and I met to write the appropriate scenarios that consisted of all the important functionalities and intricacies in the Cerner EMR. After the scenario had been defined, I and the educator outlined the best documentation workflow to educate the nurse practitioners. The Regulations and the Regulatory Analysts reviewed the education outline to confirm the compliance and regulatory standard requirements were included in the education. After the structured scenario-based education, the Ambulatory quality staff members collected the data for a sample of 30 patient charts for each nurse practitioner on the quality measures required by ACO in an Excel spreadsheet. The Excel spreadsheet consisted of a patient number to protect patients' privacy. The Excel spreadsheet consisted of documentation related to the ACO quality measures such as BMI and

follow- up, tobacco screening and cessation intervention for patients who are smokers, and depression screening and follow- up in the chart. The percentage was calculated by dividing the number of patients who had the documentation of quality measures in the chart, divided by the total number of patients. This percentage for nurse practitioner were collected and presented to me by the Ambulatory quality staff.

Strengths and Limitations of the Project

The strengths of this project included the fact that the nurse practitioners were open and willing to learn a new process to improve their documentation. The administration was supportive in implementing this project.

The limitations of this project were that there was a small sample size (only five nurse practitioners). The nurse practitioners realized following completion of the pre-test that they lacked knowledge on the effective use of Cerner EMR. They had a preconceived notion that the structure and the scenario-based training would not improve their documentation, but instead increase their documentation time. Following this project, there was no monitoring of the nursing practitioners post-education to evaluate if they continued to use the workflow that was utilized during the training. In addition, the limitations of this DNP project included the fact that there was a learning curve for the five nurse practitioners. I provided education and, shortly thereafter, started collecting the data related to documentation time. The choice to begin data collection limited the nurse practitioners' ability to apply the newly learned workflow potentially impacting the results.

The recommendations for future project implementation should include increased sample size, an increased length of time to collect data post-education and random monitoring of the nurse practitioners usage of the structured workflow.

Section 5: Dissemination Plan

Introduction

The problem addressed in this study was that the nurse practitioners at the study site were educated on the use of the EMR to document instead of how to incorporate the EMR in their workflow. The practice-focused question was centered on whether a structured education with scenario-based training in Cerner would improve the efficiency in EMR as well as documentation. The current training strategy includes online module training for the Nurse practitioners. Education on how to use the EMR, using scenario-based training, increased knowledge on how to use the EMR to document clearly, concisely and in a timely manner. The results of the DNP project showed decreased documentation time and improved documentation of ACO quality measures.

Dissemination Plan

Leadership buy-in and support is critical for the dissemination of this project. The developed structure (see Appendix A) will be demonstrated to leadership. The findings of the results of documentation time pre- and post- education, the results of the pre- and post- knowledge test, and the course evaluation results will be shared with leadership. Additionally, during onboarding of new nurse practitioners, the developed scenario and the structured education can be used to incorporate the EMR into workflow. The

knowledge test can be used pre- and post- education to evaluate the Nurse practitioner's' knowledge on how to incorporate the EMR in their workflow.

Analysis of Self

The DNP project has helped me to grow professionally by developing leadership skills such as effective communication, motivation, self-discipline, and delegation. I was able to apply my nursing skills to develop the structured workflow incorporating all the required documentation. In addition, I was able to emphasize and educate on a method to review and document information such as vital signs, preventive measures, medication reconciliation, and allergies during all patient visits.

As a Project Manager, I was able to develop a timeline, coordinate and arrange all the required elements for ACO and Meaningful Use to complete the implementation. I was able to motivate the nurse practitioners on the need to use the structured workflow for improved patient outcomes.

As a DNP student delegating the task to the Ambulatory staff and Cerner educator was challenging. There was no incentive for perceived additional workload for the Ambulatory Staff and Cerner Educator. I learned that connecting the "why" and the purpose to the person was the key to motivate staff.

Summary

The problem in this practice was that the nurse practitioners were not educated on how to incorporate the EMR into their workflow. Documentation in the EMR was often found to be incomplete, inaccurate and unreliable. The problems related to EMR

documentation must be addressed to improve patient safety and quality of care. The purpose of this project was to improve the documentation in EMR. The adult learning theory was used in the project to develop the program and the Kirkpatrick learning model was used to analyze and evaluate the training model. Data were collected using Cerner Advance, and patient quality outcomes were measured based on the quality performance ACO requirements. The findings supported that the structured scenario-based training in EMR improved the efficiency and the effectiveness of the documentation as evidenced by accurate, reliable, and timely documentation.

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Appendix A: Scenario and Structured Education

Scenario: A 50-year-old patient walks in for Physical Exam

Process: Arrange the below items in the following order in Cerner (Provider Workflow)

- Chief Complaint-
  - Patient visit reason
- Documents
  - select the most recent note to review (Note: notes can be grouped by "My notes" or "Group by encounter"
  - Open note and select appropriate information and "tag" to include in new note
- Subject of present illness
  - Document the acute visit reason
- Review of System
  - Use auto text **.GenMed_ROS** or create custom auto text to populate the Review of systems to document and edit accordingly
- Allergies
  - Review
- Histories
  - Review
- Problem List
  - Review
- Vital Sign
  - Review
- Labs
  - Review
- Diagnostic
  - Review
  - This image  will display the image
  - The image will  allow the provider to forward the results to another provider
- Home Medication/ Med Rec
  - Use External RX >> Import, review and order
- Health Maintenance
  - Review and document

- Immunization
  - Review
- Visits/Pathology/Microbiology review if necessary
  - Review
- Objective/Physical
  - Use auto text**, GenMed_PE** or create custom auto text
- New order Entry
  - Order necessary labs, immunizations, diagnostic screenings, medications and Billing.
- Patient Education
  - Select suggested education
- Follow up
  - Document follow up if necessary

Appendix B: Knowledge Test

Pre and Post Test

1) You may tag the following information during the workflow to pull into your notes
   A. Labs
   B. Document text
   C. Result report text
   D. All of the documents

2) Clicking on the  will
   A. Launch the results reports
   B. Display images
   C. Forward results to another providers
   D. Allow all users to view the results

3) Clicking on  will
   A. Launch the results reports
   B. Display images
   C. Forward results to another providers
   D. Allow all users to view the results

4) To enter Review of Systems, History of Present Illness and Physical Information you can:
   A. Manually type the information
   B. Use auto-test
   C. Use Dragon Software
   D. All of the above

5) You may create your visit note directly from the bottom of the workflow
   A. True
   B. False

6) To finalize a visit note you must click
   A. Sign
   B. Save
   C. Save and Close
   D. Cancel

Appendix C: Course Evaluation

Course Evaluation

Questions	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
The pace of the class was good for me					
The information presented was relevant to my work and my position					
Attending this training will assist my knowledge in using the application in my practice					
This training will help my documentation to be compliant with all the documentation necessary for the ACO and Meaningful use Requirements					
This training will help me decrease my documentation after office hours.					