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Evidence-Based Practice for Influenza and Pneumococcal Nurse-Driven Protocol

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Walden University

College of Health Sciences

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Melissa Tunc

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2018

Abstract

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by

Melissa Tunc

MSN, Walden University, 2011

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

May 2018

Abstract

At the project site in New Jersey, eligible patients were leaving the hospital without receiving the influenza or pneumococcal vaccine. The field site has an established, evidence-based, nurse-driven protocol. The purpose of this project was to increase adherence to the current influenza and pneumococcal nurse-driven protocol on one medical-surgical unit. This unit had experienced low adherence rates to the nurse-driven protocol for vaccines, not reaching the New Jersey state target of 96% administration prior to discharge. The practice-focused question was: Will increasing awareness of evidence-based practice increase adherence to the influenza and pneumococcal vaccine protocol? A quality improvement plan was developed to address a gap in practice using the plan-do-study-act model. Internal vaccination data was the source of evidence used to drive this project. Baseline data was used from 2 months prior to the December 2017 start of the project. Once the quality improvement plan was implemented, data were collected and analyzed weekly with the quality improvement team. Findings for the pneumococcal vaccine demonstrated reaching 96% or higher while the influenza vaccine exceeded the state target reaching 100% of discharged patients being vaccinated. Implementing large surveillance boards into clinical rounds promoted increased adherence to the protocol, achieving a positive social change. Leadership worked directly with the staff to use evidence-based practice and promote nursing autonomy to administer the vaccines. An increased number of vaccinated patients leaving the medical-surgical unit was achieved.

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Dedication

I would like to dedicate this paper to my husband and my son. Thank you for all your support over the last several years. I am hopeful that my son Mason will realize the importance of continuous learning and obtaining an advanced degree.

Acknowledgments

I would like to thank my field-site preceptor, who is a mentor and a colleague, for your guidance. I would like to also acknowledge the Director of Nurse Research for your support and mentorship with the project.

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Section 1: Nature of the DNP Project

Introduction

The influenza and pneumococcal viruses are two illnesses preventable by means of vaccination. Per the Centers for Disease Control and Prevention (CDC), influenza and pneumococcal viruses are the eighth leading cause of death for patients over 65 in the United States (CDC, 2014). The report revealed 70% of patients received the vaccine during flu season with over 4,500 annual deaths related to the influenza virus (CDC, 2016). The pneumococcal virus contributes to over 50,000 deaths each year and only 64% of patients 65 years and older received the pneumococcal vaccine. Each year, over 500,000 hospital admissions are directly related to either the influenza or pneumococcal virus.

The purpose of this project was to develop a quality improvement plan that would toward increase adherence to an established nurse-driven protocol for the influenza and pneumococcal vaccines. The positive social change of this project was to increase the number of eligible patients receiving either the influenza or pneumococcal vaccine prior to discharge from the project site. Nursing staff and nursing leadership were directly involved with developing the quality improvement plan to help guide practice as it relates to the vaccine nurse-driven protocol.

Problem Statement

At the project site in New Jersey, nurses have the autonomy to assess, order, and vaccinate patients based on an existing evidence-based, nurse-driven protocol. The protocol states the assessment must be completed upon admission and the vaccine(s) are

to be given by day 2. This process takes place by means of documentation queries within an electronic health record (EHR). The problem was the lack of adherence to the established influenza and pneumococcal vaccine protocol, allowing patients to leave the hospital without receiving the influenza and/or pneumococcal vaccines. The pneumococcal vaccine is offered year-round and the influenza vaccine is offered during flu season, October 1 through March 31, of each year. In 2011, the vaccine protocol had been approved by both the nurse practice council and the medical board, yet still had low adherence to vaccine administration.

On one medical-surgical unit, adherence to the protocol was lower than any other medical-surgical unit at the project site. The unit-manager reported the lack of knowledge as to why the protocol was not being followed and further explained this protocol was not a priority for the medical-surgical unit or for the leadership team. Mori (2014) suggested that nursing leadership is a key factor in the successful use of evidence-based guidelines by empowering nurses to follow the protocol. Nursing leadership should be encouraging the use of evidence-based, nurse-driven protocols with direct-care staff and creating a nonpunitive culture for following the guidelines.

In the state of New Jersey, where the project site is located, the state average of hospital assessing and administering the influenza vaccine is 96% and the national average is 94% (CMS, 2017). Both the Centers for Medicare and Medicaid Services (CMS) and The Joint Commission (TJC) set the target of 96% of discharged patients being vaccinated with the influenza vaccine. The overall administration rate of the hospital was lower than both the state average and national average. These data are made

publicly available so that consumers to compare quality outcomes between hospitals. Based on the data, consumers may not choose the project site as the hospital of choice. The project site worked toward improving adherence to the vaccine protocol to increase the number of patients being vaccinated.

The nurse-driven protocol was developed by a team of clinical nurses in 2011 based on evidence-based guidelines set forth by the CDC. Although nurses may be familiar with the concept of evidence-based practice, most direct care staff did not recognize how that translated into daily practice (Gu, Ha, & Kim, 2015). One of the most cost-effective approaches to reducing influenza and pneumococcal illness is to receive the vaccine (Gilchrist, Nanni, & Levine, 2012). Administering the influenza and pneumococcal vaccine while the patient is an inpatient will help reduce the risk of contracting the virus as well as reduce the possibility of a hospital readmission (Neupane, Walter, Krueger, Marrie, & Loeb, 2010). Patients with multiple comorbidities have a greater chance of a hospital readmission, however, receiving the influenza or pneumococcal vaccine significantly decreases the chance of readmission and mortality (Cimen, 2015). In 2009, the World Health Organization (WHO) elevated the national health concern regarding the influenza virus (Gilchrist, Nanni, & Levine, 2012). During influenza season, people have a greater chance of contracting the pneumonia virus, which increases the risk of mortality.

Nurses have a direct responsibility for the quality of care that is provided. Nurses following an evidence-based, nurse-driven protocol will contribute to quality of care by ensuring that patients are properly screened and vaccinated while in an acute-care

hospital. Per Healthy People 2020, influenza and pneumococcal viruses are the eighth leading cause of death in the United States (Healthy People, 2017). Adhering to nurse-driven vaccine protocols will increase the number of vaccinated patients with the intent of reducing mortality rates associated with one or both viruses. The desired outcome for the evidence-based project was to increase adherence to the influenza and pneumococcal evidence-based, nurse-driven protocol, improve the health of the population, prevent readmissions leading to higher healthcare costs, and contribute to a higher quality of care.

This quality-improvement doctoral project holds significance for the field of nursing practice in multiple ways. First, nurses need to ensure that all patients are properly screened upon admission to determine eligibility for the influenza and pneumococcal vaccine. Next, nurses have the power to educate and encourage patients to receive the vaccine, if eligible (Driver, 2012). Nurses need to be acutely aware of the high-risk population and focus efforts on explaining the benefits of the influenza and pneumococcal vaccines. Lastly, nurses need to ensure adherence to the influenza and pneumococcal vaccine nurse-driven protocol is followed by administering the vaccine. The general practice of a nurse is based on learned behaviors, experience, and physician orders (Malik, McKenna, & Plummer, 2015). These learned behaviors and experience dictate how a nurse practices autonomously. When a nurse exercises clinical autonomy, follows the nurse-driven protocol for vaccines and administers the vaccine, patient outcomes will improve.

Purpose Statement

At the project site, a gap in process was identified by nursing leadership with adherence to following the evidence-based, nurse driven protocol for influenza and pneumococcal vaccines. The purpose of this project was to increase the number of eligible patients receiving the influenza and pneumococcal vaccine upon discharge from the project site.

During hospitalization, nurses can vaccinate patients with the intent to improve health and decrease hospital readmissions (Smith & Metzger, 2011). The recommendation from the Centers of Disease Control [CDC] is to assess all inpatients for vaccine eligibility and administer the vaccine prior to discharge (CDC, 2016). At the project site, nurses screen patients on admission to determine eligibility for the influenza and/or pneumococcal vaccine.

The gap in process of concern was the administration of the influenza and pneumococcal vaccine prior to discharge. The current influenza and pneumococcal vaccine protocol specifically outlines the steps a nurse must take based on evidence-based guidelines. The last step of administering the vaccine had the lowest adherence rate on one medical/surgical unit. Although there is research to demonstrate the benefits of nurses following a protocol, not all nurses will make clinical decisions based on the guidelines within the protocol (Engvall, Padula, Krajewski, Rourke, Gomes-McCillivray, Desroches, & Anger, 2014).

The practice-focused question was: Will increasing awareness of evidence-based practice related to influenza and pneumococcal vaccines increase adherence to the

protocol? This project was urgently needed due to low adherence to the influenza and pneumococcal vaccine protocol. Focusing on evidence-based practice and supporting nurses to make decisions based on guidelines is imperative to success (Chang, Russell, & Jones, 2010).

In this quality improvement project, I focused on the development of an improvement plan to increase adherence to the established influenza and pneumococcal nurse-driven protocol on one medical-surgical unit. Key stakeholders were selected to form a quality improvement team to work toward the goal of 96% of discharged patients being vaccinated. The quality improvement team focused on the established vaccine protocol and developed a quality improvement plan to improve the current practice of vaccine administration. Once nurses understood how evidence-based practice for influenza and pneumococcal vaccines translates into the nurse-driven protocol, an increase in adherence occurred.

Nurse-driven protocols are designed to guide nurses to make clinical decisions during patient care. Although positive results have been observed with the use of various nurse-driven protocols, not all nurses will follow the protocols. Understanding the barriers as to why nurses do not follow protocols and do not feel comfortable making autonomous clinical decisions is the key to removing the barriers (Sublett, 2016). As health care changes, nurses must be empowered to make clinical decisions that will have a positive impact on the overall quality outcome for the patient.

Nature of the DNP Project

The nature of the DNP project was to develop a quality improvement plan to increase adherence to the influenza and pneumococcal vaccine nurse-driven protocol on one unit within the project site. I addressed the gap in practice by facilitating the improvement team to create a plan addressing the lack of adherence to the protocol. A vaccine quality improvement team was developed that included the unit-based nursing staff, unit leadership, clinical informatics, pharmacist, and an information systems analyst. The quality improvement project was guided by use of the plan-do-check-act (PDCA) model. The focus of the quality improvement team was to implement strategies to help increase adherence to the protocol. The plan included the goal of reaching 96% of discharged patients being vaccinated (CMS, 2017; TJC, 2006).

Sources of evidence used for this project included the specific vaccine administration rates of one medical-surgical unit. No data were accessed until IRB approval was granted. The quality improvement team collected data on an ongoing basis for trending purposes. Data from the 2 months prior to implementation were used as the baseline data. Program evaluation was conducted for 2 months after implementation by the quality improvement team. Data, post improvement plan, determined if a change had occurred with increased vaccination rates. The quality improvement team analyzed the data weekly to determine if there were trends that needed to be addressed in the improvement plan.

The data were organized and analyzed through means of an electronic data analytics tool the project site currently used. The tool provided vaccination rates for the

influenza and pneumococcal vaccines. The data were organized by unit and was broken down to shift and the individual nurse. Data were shared and analyzed by the quality improvement team on a weekly basis. A basic graphic chart was used to display the baseline data and data post-implementation of quality improvement plan. The chart noted the specific elements of implementation as it correlated with the monthly timeline.

Significance

The main stakeholders of this project included the patients, nursing leadership, direct care staff, pharmacy, nursing informatics, and an information systems analyst. The team was known as the Vaccine Quality Improvement Team (VQIT). The patient is at the center of nursing care and had the greatest health-related impact from this project. The work of the quality improvement team was the development of the improvement plan and the implementation of strategies to increase vaccination.

The project team assessed the current gap in practice related to the influenza and pneumococcal vaccine protocol. The development of a quality improvement team with an improvement plan can be used in other clinical areas where a gap in practice has been identified. Because nurses generally make clinical decisions based on their own knowledge, experience and comfort level, the improvement plan will help guide nurses to make better clinical decisions at the bedside (Malik, McKenna, & Plummer, 2015).

The positive social change implication of this project was the focus on increasing adherence to the current vaccine protocol. The quality improvement plan worked toward changing the clinical behavior of nurses to successfully increase the number of patients receiving the influenza and/or pneumococcal vaccine. During hospitalization, nurses can

vaccinate patients with the intent to improve health and decrease hospital readmissions (Smith & Metzger, 2011).

Conducting this project increased adherence to the vaccine protocol. The recommendation from the CDC is to assess all inpatients for vaccine eligibility and administer the vaccine prior to discharge (CDC, 2016). If nurses understand how evidence-based practice for influenza and pneumococcal vaccines translates into the nurse-driven protocol, an increase in adherence to the protocol should occur. With an increase in nurses following the protocol, more eligible patients will be vaccinated with the influenza or pneumococcal vaccine prior to discharge leading to decreased mortality associated with a preventable illness.

To make a positive social change required a different approach in nursing practice. Kristensen, Nymann, and Konradsen (2016) explained that patients do not always receive evidence-based care due to the slow process of incorporating best practices into nursing practice. Nurses required a change in behavior to follow the evidence-based nurse-driven protocol and take autonomous action to administer the vaccine(s) based on the assessment of patient eligibility (Weston, 2010). During hospitalization, patients are reliant on nurses to assess need and administer vaccines (CDC, 2015). When more patients are vaccinated with the influenza or pneumococcal vaccine, the less likely patients will contract the influenza or pneumococcal virus, increasing the overall health of the population.

Summary

The purpose of this project was to increase adherence to the current influenza and pneumococcal vaccine nurse-driven protocol. This was achieved by developing a quality improvement plan to address the current gap in the process. This gap was identified as the lack of administration of the influenza and pneumococcal vaccine despite an existing nurse-driven protocol. Because the influenza and pneumococcal viruses are preventable illnesses with vaccination, increasing administration of the vaccines will help contribute to the overall health of the population (CDC, 2014). In the next section, I will discuss the model that was used, relevance to nursing practice, local and background context, my role, and the role of the project team.

Section 2: Background and Context

Introduction

A gap in practice at the project site was identified by nursing leadership as low adherence to the influenza and pneumococcal nurse-driven protocol. The purpose of this DNP project was to develop a quality improvement plan to increase adherence to the influenza and pneumococcal vaccine nurse-driven protocol within the project site. This project addressed the practice-focused question of: Will increasing awareness of evidence-based practice related to influenza and pneumococcal vaccines increase adherence to the protocol? Due to low adherence to the influenza and pneumococcal vaccine nurse-driven protocol at the project site, this project was needed to increase the number of eligible patients receiving the influenza or pneumococcal vaccine prior to discharge. To achieve this, a quality improvement plan was developed to provide structure to meet the goal of 96% of discharged patients being vaccinated.

Concepts, Models and Theories

The model that was most appropriate to address the problem is plan-do-study-act (PDSA) model. The model is also known as plan-do-check-act (PDCA). PDSA was developed by Edward Deming with the intent to improve quality and quality outcomes (Peter & Paul, 2015). PDSA is designed to improve a process by following the four steps of plan-do-study-act (IHI, 2017). The PDSA model was used to develop a goal of the project, select measurable outcomes, select changes to be implemented, and test the changes. Before changes can be made, identification of the problem must first occur with a clear outline of the project aim. Once the problem is identified, changes will be

implemented and outcomes will be measured. The cycle repeats as outcomes are measured and changes need to be made to the improvement plan. As the team analyzed the data monthly, changes could be made to the improvement plan. This process determined if these changes were making a positive impact with adherence to the protocol.

In addition to the PDCA model, the Iowa Model was used as this is the evidence-based practice model adopted by the project site. The Iowa model has been used in nursing research for the last 20 years and includes seven steps that are straightforward when translating evidence into practice (Schaffer, Sandau, & Diedrick, 2013) The Iowa model was developed for the use of improving quality within healthcare settings as the intent of the model is to implement evidence-based practices (Dontje, 2017). The seven steps of the model, as outlined by Doody and Doody (2011), are: selecting a topic, forming a team, evidence retrieval, grading the evidence, development of an evidence-based standard, implement the evidence-based practice, and evaluation. Although the seven steps are easy to follow, education needs to be provided for the model to be effective (Doody & Doody, 2011).

In tandem with the PDSA, following these steps will determine if a practice issue is a priority for the organization to explore the need to change, determine if the current research is relevant and reliable and make the decision to change practice. Benefits of the Iowa Model include embedding research into practice while utilizing a multidisciplinary team to ensure all aspects of patient care are addressed. The impact of an evidence-based

practice model is to create a culture to promote the best nursing practice and provide a framework to guide nurses in questioning the current practice (Doody & Doody, 2011).

The purpose of the Iowa model was to review and select evidence-based practices that have been proven to be successful with increasing the number of vaccinated patient prior to discharge. This included implementing an alert in the EMR to remind nurses a vaccine is indicated and due for administration. Once evidence-based practices were selected by the quality improvement team the PDSA cycle was used to test the changes and measure outcomes.

Key Terms

Terms used within this project were:

Evidence-Based Practice: the process of using current evidence, based on research, to make clinical decisions for the patient (Xiaoshi, 2008).

Influenza Vaccine: An antigen used to prevent the influenza virus. The influenza virus is grown in the fertilized egg of a hen and extracted after several days. The virus is then inactivated which provides a purified antigen. This process is approved by the Food and Drug Administration (FDA). Non-egg based and nasal forms of the influenza vaccine are also available (CDC, 2016).

Nurse-Driven Protocol: Evidence-based guidelines approved for nurses to make clinical decisions without a physician's order (Engvall, Padula, Krajewski, Rourke, Gomes-McCillivray, Desroches, & Anger, 2014).

Pneumococcal Vaccine: Two types of pneumococcal vaccines are available; PCV13 and PPSV23. PCV13 is a vaccine developed to prevent specific types of bacterial pneumonia. PPSV23 is a polysaccharide vaccine made of sugar molecules that mimic specific types of pneumococcal viruses (CDC, 2016).

Quality Improvement Plan: Methodical approach to outline an issue, implement changes to achieve better outcomes (Groves, Burns, & Gray, 2013).

Relevance to Nursing Practice

Organizations such as the Centers for Medicare and Medicaid Services (CMS) and The Joint Commission (TJC) require hospitals to provide high-quality outcomes. These organizations promote the use of evidence-based practice to sustain high-quality outcomes and decrease practice variability. Consistently applying evidence-based guidelines in practice will continually promote high-quality outcomes. Hospitals need to embrace and promote evidence-based practice to achieve and sustain outcomes that are high-quality, provide patient satisfaction, and promote the best possible care. As health care quality continues to be a priority, nurses will need to be armed with the knowledge to locate and implement evidence-based practices. Clinical practice that is driven by evidence-based guidelines will reduce complications, avoid unnecessary procedures, and improve overall patient outcomes.

Nurses have a responsibility to ensure high-quality outcomes are achieved when caring for a hospitalized patient. Planning for change, implementation, and evaluation of the evidence-based practice (EBP) are important steps in making change (Dudley-Brown, 2012). The need to ensure patients are vaccinated while in the hospital has significantly

increased over the last several years (CDC, 2016). Resolving this issue was important to decrease the number of people affected by either the influenza or pneumococcal illness.

The CDC (2015) recommended anyone over the age of 6 months should receive the influenza vaccine. The pneumococcal vaccine is recommended for infants through the elderly that are at high risk due to medical illnesses or currently smoke cigarettes (CDC, 2016). Based on the CDC recommendations, everyone should be assessed for eligibility of either the influenza or pneumococcal vaccine. Receiving the influenza or pneumococcal vaccine will decrease hospitalizations and mortality. Patients with comorbidities and chronic medical conditions under the care of a physician, regardless of age, may be proactive to receive the vaccine (Linn, Guralnik, & Patel, 2010). The otherwise healthy person is not proactive with seeking either the influenza or pneumococcal vaccine, leading to lower rates of vaccine administration.

Fahlstrom, Boyle, and Flynn-Makic (2013) explained that nurse-driven protocols are designed to allow nurses to follow guidelines that are supported by physicians and administration. The guidelines in the nurse-driven protocol provide a sense of comfort and protection for nurses when caring for patients. Nurse-driven protocols are designed to guide nurses to make clinical decisions during patient care. Although positive results have been observed with the use of various nurse-driven protocols, not all nurses will follow the protocols. Understanding the reasons why nurses do not follow protocols and do not feel comfortable making autonomous clinical decisions will be key to remove the barriers (Sublett, 2016). As health care changes, nurses must be empowered to make

clinical decisions that will have a positive impact on the overall quality outcome for the patient.

For this project, nurses needed to gain knowledge on the evidence-based practice, nurse-driven protocol for influenza and pneumococcal vaccines, adhere to the vaccine protocol, and reach the goal set in the quality improvement plan. The goal for nurses was to feel empowered to change practice using methods that are proven to produce high patient outcomes (Fahlstrom, Boyle, & Flynn-Makic, 2013). The gap in practice was the lack adherence to the vaccine policy. Moch and Cronje (2007) explained that 49% of nurses in a community hospital did not adhere to nurse-driven protocols. In addition, 48% of nurses reported they had knowledge of evidence-based practices yet could not translate them into a nurse-driven protocol. The findings of the study suggested that nurses do not have the time or resources available to increase awareness of evidence-based practice. Malik, McKenna, and Plummer (2015) explained the profession of nursing is required to use evidence-based practices to grow the profession and produce high quality outcomes. This project was designed to increase awareness of evidence-based practice as related to the influenza and pneumococcal nurse-driven protocol. Although this project specifically targeted an increase in adherence to the influenza and pneumococcal nurse-driven protocol, the increase in awareness of evidence-based practice can be utilized for any nursing protocol.

One strategy that has been used previously to address this gap in practice is the implementation of a reminder within the EMR. Ruffin et al. (2015) highlighted a 55% increase in vaccine administration when the electronic reminder was used. Another study

was conducted to evaluate the improvement of a clinical decision message displaying on the EMR when a vaccine was due to be given (Patwardhan, Kelleher, Cunningham, Menke, & Spencer, 2015). The message contained influenza best-practice information to remind the clinician of the importance of vaccine administration. An increased number of patients were vaccinated when this message was provided. Another strategy that was implemented was the development of a “flu crew” to educate and promote the administration of the influenza vaccine. Using this type of awareness program increased the number of patients being vaccinated over a 1-year period. Although this took place in a clinic, this type of approach can be used within a hospital setting and was considered for this project. The quality improvement team chose to use the EMR reminder, the implementation of an electronic surveillance board, and develop a “vaccine crew” to promote awareness of the importance of vaccine administration.

Local Background and Context

The project site had experienced lower vaccination rates compared to the state target of 96%. On one medical-surgical unit, the rate of vaccine administration was the lowest in the hospital. The low vaccine administration rates were attributed to the lack of adherence to the current vaccine protocol. The project site uses an electronic health record for the assessment and administration of the influenza and pneumococcal vaccines. The system is designed to ensure all patients are screened upon admission. Once the patient is screened and is eligible for either the influenza and/or pneumococcal vaccine, the pharmacy department receives notification through an electronic vaccine surveillance board. The surveillance board notifies the pharmacist of the eligibility for

the patient to receive either or both vaccines. The pharmacist profiles the vaccine on the electronic medication administration record (eMAR). On Day 2 of the patient admission, the vaccine is to be administered by the nurse.

CMS and the New Jersey Department of Health require all inpatients 65 years and older to be screened and vaccinated, if eligible (CDC, 2014). To ensure this practice is being followed, CMS requires hospitals to conduct manual chart abstractions to determine if patients who were screened for the influenza vaccine received the vaccine prior to discharge (Quality Net, 2017). Both the State of New Jersey and CMS consider prevention of an illness through vaccines to be a quality measure. Based on the current evidence-based, nurse-driven vaccine protocol, the nurse is to administer the vaccine on Day 2 of the patient admission. The gap in practice revolves around the administration of the vaccine. Patients were being assessed upon admission and leaving the hospital without receiving the vaccine.

Role of the DNP Student

The expectation of a DNP student is to begin practicing in a higher-level role as a nurse. The DNP role was designed to carry out evidence-based practices developed by research, improve the quality of care, and foster collaborative practice (AACN, 2017). As the change agent in this DNP project, my role was to work with the leadership staff to provide mentorship and lead the quality improvement team. This DNP project promoted the practice of working with nurses directly that influence patients receiving the influenza or pneumococcal vaccine. My current role is to focus on compliance to the state and federal regulations for the hospital. This role rarely requires direct involvement with

nursing staff. For this project, I was able to lead a quality improvement team to create a quality improvement plan. Working on the DNP project allowed my role of quality director to expand by incorporating collaboration between the department of quality and the direct-care staff. Working in quality, I must approach issues without bias. I did not have a potential bias in relation to this project.

Role of the Project Team

The project team consisted of the manager and advanced practice nurse on a medical-surgical unit, the direct care staff, pharmacist, clinical informatics nurses and an information systems analyst. This project team had the responsibility to develop the quality improvement plan and select the evidence-based strategies to reach the goal of 96 percent. The facility leadership had requested that an inquiry be made to outline the barriers or perceived barriers to not following the protocol. The project team, in conjunction with the unit manager, set aside time on a staff meeting agenda to solicit feedback from the nursing staff.

The staff meeting provided a forum for the direct-care staff to share expertise and insights as it related to this DNP project. The direct-care nurses were involved in the project to determine barriers or perceived barriers and gain knowledge on evidence-based practice to understand how that translates into a nurse-driven protocol (Malik, McKenna, & Plummer, 2015). The feedback from the nurses served to select the strategies needed to improve adherence to the protocol.

In addition, the improvement team had responsibilities in the project. The direct-care nurses had the responsibility to assess and administer the vaccine(s). The pharmacist

had responsibility to profile the vaccine based upon the assessment of the nurse. The unit manager and the advanced practice nurse provided education to the nurses on evidence-based practice. The quality improvement team was responsible for the implementation of the selected strategies for the project.

The clinical informatics nurses were involved in the project to ensure that the electronic health record was up to date with the nurse-driven protocol and no documentation issues would lead to not administering the vaccine. The information systems analyst worked to ensure the electronic surveillance board was functioning to capture all patients that are eligible to receive either the influenza or pneumococcal vaccine based on the nursing assessment. These were the key stakeholders that directly impact following the influenza and pneumococcal vaccine nurse-driven protocol.

A timeline was created to keep the DNP project on time to meet deadlines. Weekly meetings were arranged with the unit manager, advanced practice nurse, pharmacists, clinical informatics nurses, and the information systems analyst. Each week, discussions occurred about the overall project, targets, and resources. The unit manager and advanced practice nurse were responsible to communicate to the nursing staff on the medical-surgical unit. The pharmacist worked directly with the nursing staff to capture any issues related to the ordering and availability of the vaccine. All issues were be tracked and analyzed by the VQIT.

Summary

Due to the lack of adherence to an evidence-based nurse-driven protocol for the influenza and pneumococcal vaccine, a team approach was necessary to develop a quality

improvement plan. All the selected stakeholders provided a vital role in this DNP project. Evidence from literature was utilized to find best practices that were related to strategies to improve quality outcomes. The focus remained on the influenza and pneumococcal vaccines however, the increase in evidence-based practice awareness and creation of a quality improvement plan may be beneficial for any type of evidence-based practice project within the organization. The next section of this paper will address the practice-focused question, clarification of the purpose, and sources of evidence.

Section 3: Collection and Analysis of Evidence

Introduction

The influenza and pneumococcal viruses are two illnesses preventable by means of vaccination. Per the CDC data statistics, influenza and pneumococcal viruses are the eighth leading cause of death for patients over 65 in the United States (CDC, 2014). As part of the quality improvement plan for this project, a quality improvement team was created to understand the current barriers to adhering to the vaccine protocol, develop a quality improvement plan, and implement strategies for improvement.

Practice-Focused Question

The project site had been experiencing low adherence to the influenza and pneumococcal nurse-driven protocol. This project focused on the development of a quality improvement plan to increase vaccination to meet the New Jersey state target of 96%. The practice-focused question for the project was: Will increasing awareness of evidence-based practice related to influenza and pneumococcal vaccines increase adherence to the protocol?

Due to the preventative benefits of receiving the influenza or pneumococcal vaccine, the goal was increase the number of patients receiving the vaccine as a hospital inpatient by means of adherence to the vaccine policy (CDC, 2016). Smith and Metzger (2011) conducted a study to determine the impact of a nurse-driven protocol for pneumococcal vaccine administration. The results revealed an increase from 19% to 74% in pneumococcal vaccine administration rates. Nurse-driven protocols are designed to guide nurses in making clinical decisions during patient care.

Sources of Evidence

Various sources of evidence were used to guide the practice focused question. The project site currently collects vaccine administration data on a regular basis. Once IRB approval was obtained (10-30-17-0070255), vaccine administration data were used for baseline and post implementation data for trending purposes. Once the quality improvement plan was implemented, data continued to be collected on a weekly basis. This data collection method and use of a run chart provided information to determine if an improvement took place. In addition to the local data, a comprehensive literature search that focused on scholarly articles and course textbooks was used to determine best-practices for vaccine administration protocols. The VQIT used these best practices to build strategies into the quality improvement plan. The online sources of evidence used to meet the purpose of this doctoral project was collected through literature found at the Walden online library. Evidence that focused on nurse-driven protocols, nursing autonomy, evidence-based practice, quality improvement plans, and the influenza and pneumococcal vaccine were used.

Evidence-based practice is a national initiative that is supported by agencies such as the Institute of Medicine (IOM), the American Nurses Credentialing Center (ANCC), and The Joint Commission (TJC; Smith & Donze, 2009). These agencies have made the undertaking of EBP in nursing critical. Organizational culture and leadership have a vital role in evidence-based practice with direct-care staff using evidence-based practice (Kristensen, Nymann, & Konradsen, 2016). Using evidence-based practice in patient care requires collaboration between nursing, leadership, and the interdisciplinary team. Increasing adherence to nurse-driven protocols will allow for long-term sustainability of high-quality patient outcomes. Nurses need to be educated on evidence-based practice on a regular basis to ensure that nurses are functioning at the highest level to provide the best possible care (Farokhzadian, Khajouei, & Ahmadian, 2015). Linking evidence-based practice to how it directly relates with patient care outcomes may provide new perspectives for nurses.

Wallis (2012) conducted a study and surveyed over 1,000 nurses to determine barriers that may impact the use of evidence-based practice. Two of the biggest concerns that came from the study were related to the lack of organizational support and an educational deficit of knowing how to implement evidence-based guidelines in to practice. Nurses expressed concern with a lack of mentorship or guidance from nursing leaders and nursing colleagues as well as the lack of support to practice autonomously.

CMS require hospitals to ensure patients are receiving high-quality, safe care. This means nurses must incorporate best practices based on evidence-based guidelines into daily care. Nurse-driven protocols provide nurses with guidelines to make an

autonomous clinical decision based on clinical judgement, following the guidelines within the context of the protocol. Agencies such as TJC and CMS advocate for protocols to standardize care, eliminate practice variation, and improve outcomes (Fessele, Yendro, & Mallory, 2014). Quality data are also publicly reported by CMS which provides consumers with an inside look of any acute-care organization.

Although research has demonstrated the benefits of nurses following a protocol, not all nurses will make clinical decisions based on the guidelines within the protocol (Engvall et al., 2014). An evidence-based project was conducted by Engvall et al. (2014) to promote the use of a nurse-driven protocol. After the nurse-driven protocol was implemented, only 80% of nurses were following autonomously. Younhee and Insuk (2016) conducted a study that revealed only 75% of nurses believed to have professional autonomy and would feel comfortable making decisions supported by a protocol. This leaves 25% of nurses not following a nurse-driven protocol designed for nursing autonomy.

Nurses seek practice autonomy yet are facing barriers, or perceived barriers, to acting autonomously when given the approval to do so (Weston, 2010). Nursing autonomy has proved to increase job satisfaction for nursing as well as provide high-quality outcomes for patients (Atefi, Abdullah, & Wong, 2016). Nurses must be empowered to practice autonomously without the fear of punitive action from a decision made based on a nurse-driven protocol. Fostering an environment that allows nurses to practice autonomously, by using a nurse-driven protocol, comes from the leadership and culture of an organization. Adhering to a nurse-driven protocol and increasing the

number of patients being vaccinated will contribute to improving the health of the local population while decreasing healthcare costs associated to readmissions.

Nurses have a responsibility to ensure high-quality outcomes are achieved when caring for a hospitalized patient (Mallion & Brooke, 2016). Healthy People 2020 explained the urgency of decreasing preventable illnesses by increasing the number of vaccinated people each year (U.S. Health & Human Services, 2014). Both the influenza and pneumococcal viruses are preventable illnesses with the administration of a vaccine (CDC, 2016). During hospitalization, nurses must screen and vaccinate patients to help contribute to the health of the population by decreasing the risk of contracting the influenza or pneumococcal virus (Grohskopf et al., 2016).

I used the Walden online library as the primary source of obtaining published outcomes and research needed to guide strategies to build the quality improvement plan. The databases used for the search were CINAHL, PubMed, ProQuest Nursing and Allied Health source, and Ovid Nursing Journals. Examples of search terms used were *Influenza and Pneumococcal Vaccines, Nurse-Driven Protocols for Vaccines, Barriers to Evidence-Based Practice, Barriers to Following Nurse-Driven Protocols, Nursing Autonomy, and Increasing Adherence to Evidence-Based Practice*. The Centers for Disease Control and Prevention, The Joint Commission, Institute of Medicine, and World Health Organization websites were also used to locate scholarly articles and references for the influenza and pneumococcal vaccine as well as evidence-based practice. I used the above key terms to locate scholarly articles and references on these websites.

The dates of scholarly articles and references were between the years of 2007 and 2017. This date range provided the most current literature available to guide this DNP project. The literature identified with these searches yielded hundreds of research studies. Other literature and studies were found related to evidence-based practice, nursing autonomy, quality improvement, and nurse-driven protocols in other practice areas outside of the influenza and pneumococcal vaccines. The search was exhaustive and comprehensive to determine the best resources to use for this project.

An analysis of the organization's operational data that is routinely collected for CMS was used for the influenza vaccine only. These data are the assessment and administration of the influenza vaccine and are provided up to date reports. Currently, CMS does not require submission of the pneumococcal vaccine. A third-party vendor, approved by CMS, is used to conduct a random-sample chart abstraction on 20% of discharged patients, as required (QNET, 2017). The data entry is performed by nurses in the quality department. These data are used to ensure hospitals are appropriately assessing and administering the influenza vaccine.

The results of the data were provided for the selected medical-surgical unit. The data were presented to the staff to highlight the overall adherence to the influenza and pneumococcal nurse-driven protocol. The data were sorted by month, quarter, and year to determine shifts and trends. The data for the selected medical-surgical unit were used prior to and after education was conducted for evidence-based practice.

For this DNP project, a data analytics tool was used to capture all discharged patients for the influenza and pneumococcal vaccine. The project site had recently

structured a data analytics team. The focus of this team was to develop electronic visual boards, using data analytics, to capture specific types of patient populations. This tool captured all discharged patients from the project site electronic medical record and displayed on a visual surveillance board. The tool used to collect data for the DNP project was not specifically designed for the project. Although the tool was not specifically designed for the project, the tool was used to collect data for the DNP project. The tool was created by the information systems analyst and nurse informaticist. The data provided from the tool displayed the discharged patients by unit, indicate if the assessment is complete or incomplete and display the status of the vaccine administration as given or not given.

Access to any of the data for the selected medical-surgical unit was limited to the vaccine quality improvement team. The data will be shared by the unit manager with the nursing staff and nursing leadership. This project was considered part of the organizations ongoing mission to improve quality. The role of the Internal Review Board (IRB) at Walden University was to determine if the presented project provides more benefits than risks to those that are involved (Walden University, 2017). The Walden IRB (10-30-17-0070255) and the project site IRB reviewed the application and provided approval of this quality improvement project. In addition, the project was brought to the unit-based shared governance committee. Data collection did not occur until approval was received from both IRB's.

Analysis and Synthesis

The system used for recording, tracking, organizing, and analyzing the evidence was the data analytics tool as described above. The data will remain in the tracking system for the management and security of the data. Based on the configuration of the data analytics tool, missing data did not occur. If there was no documentation of an assessment, the visual board will display the word incomplete and no documentation of vaccine administration will display not given. Determination that the practice-focused question was being addressed was noted with an increase in vaccinated patients. An analysis of the quantitative data will demonstrate an increase in the percentage of discharged patients being vaccinated if the knowledge transfer has taken place (Polit, 2010). Data were analyzed weekly and monthly to determine an increase in adherence has occurred. This was determined by the number of eligible patients receiving either the influenza or pneumococcal vaccine prior to discharge. An upward trend was noted each month, reaching toward the goal of 96 percent.

Summary

Promoting awareness of evidence-based practice related to the influenza and pneumococcal nurse-driven protocol was noted by an increased number of patients being vaccinated. This quality improvement project targeted innovative elements for implementation to drive policy adherence to reach the state target of 96%. A thorough literature search with outcomes was exhausted to find the best solutions for implementation. After this project was completed, ongoing education of evidence-based practice will need to be established to sustain high quality outcomes.

Section 4: Findings and Recommendations

Introduction

The project site had been experiencing lower adherence to the influenza and pneumococcal nurse-driven protocol to meet the New Jersey target of 96%. This project included the development of a quality improvement plan created by a vaccine quality improvement team (VQIT). The practice-focused question for the project was: Will increasing awareness of evidence-based practice related to influenza and pneumococcal vaccines increase adherence to the protocol? Sources of evidence were obtained through an electronic vaccine compliance application. The logic built into the application looks for a patient with a vaccine order and documentation in the medication administration record of given or not given. Data are updated each morning with the results from the previous calendar day. The unit-specific data were reviewed and analyzed by the vaccine quality improvement team on a weekly basis.

Findings and implications

The (VQIT) implemented two changes to address the lack of adherence to the influenza and pneumococcal vaccine protocol. First, a large electronic surveillance board was placed in the nurse's station to highlight pertinent information for the patient, having one column designated for influenza and pneumococcal vaccines. The second change was incorporating the detailed electronic surveillance board into the workflow for the unit-based advanced practice nurse, charge nurse, and pharmacist. This information was provided through use of a mobile work stations with a screen large enough for the

rounding team to view at once. The surveillance board provided key information regarding vaccine status per patient.

Table 1

Influenza and Pneumococcal Vaccine Administration

	October 2017	November 2017	December 2018 (Intervention)	January 2018	February 2018
Influenza Vaccine	92%	94%	94%	100%	100%
Pneumococcal Vaccine	89%	89%	87%	96%	98%

In the beginning of December 2017, the interventions were put in place for the rounding team to use. The rounding team consisted of the unit charge nurse, advanced practice nurse, pharmacist, and nursing staff. When reviewing the December data with the VQIT, the advanced practice nurse informed the team that rounding was not taking place consistently during this time due to staffing issues. This was the explanation for not seeing an increase in vaccine administration during the month of December. Once rounding became consistent on the unit toward the end of the December, the data revealed an increased number of patients receiving the vaccine.

The analysis revealed that vaccines were not consistently being administered by Day 2 of admission as stated in the nurse-driven protocol. During clinical rounds, nurses would communicate to the charge nurse a feeling of discomfort administering the vaccine on Day 2, preferring to administer the day of discharge. For the purpose of this project,

administration of the vaccine at any time during the admission was acceptable. The recommendation from the VQIT was to make modifications of the nurse-driven protocol, removing the requirement to administer on Day 2 of admission.

During the project time, a consultant company was used for staffing management throughout the organization. Due to the changes with the consultant, a change in staffing occurred on the unit, causing an interruption in unit-based rounds. For a period of 3 to 4 weeks, rounds did not take place 5 days a week. The VQIT needed to work on a plan to ensure rounds took place through the shift in order to continue improving adherence to the protocol. Another unanticipated outcome of the findings was related to the focus on the influenza vaccine. Because this project took place during flu season, the pneumococcal vaccine seemed to get lost during rounds earlier in the month of December. After discussion with the VQIT, more effort was placed on the pneumococcal vaccine.

Another unanticipated limitation of the project was the unit-based pharmacist was away for 3 weeks. This led to having a different pharmacist assigned to the unit for this period of time. Each day, the leadership team had to inform the pharmacist of the process of the unit-based rounds with a focus on influenza and pneumococcal vaccines. Although this was a limitation to the unit, a positive outcome of the rotating pharmacists was the just-in-time education the pharmacist gained and would take back to their assigned units.

The quality improvement plan focused on achieving the outcome of having more patients vaccinated with either the influenza or pneumococcal vaccine prior to discharge. Providing more vaccines to patients increased the those in the community with being

protected (CDC, 2016). Prior to this quality improvement plan, not all discharged patients from this unit were being vaccinated. The majority of patients discharged from this unit generally transferred to a long-term care facility, making the need for vaccination that much more important. This population of geriatric patients had a higher risk of contracting the influenza or pneumococcal illness (CDC, 2016).

Potential positive social change included the increased number of discharged patients being vaccinated. When nurses followed the evidence-based, nurse driven protocol, the overall health of the population increased. The recommendation from the Centers for Disease Control and Prevention focused on the need to assess and administer vaccines when patients are hospitalized (CDC, 2016). Providing the influenza and pneumococcal vaccine to eligible patients worked toward decreasing unnecessary mortality rates associated with these two illnesses.

Recommendations

The recommended solution that will address the gap-in-practice is to continue to the plan to implement surveillance boards on all patient care units. Six units in the organization already have surveillance boards with the remaining units receiving the board throughout 2018. The director of nursing informatics will work with each unit to determine the best place to display the board the and specific metrics that will be listed. In addition, the director of nursing informatics will collaborate with the unit leadership and clinical staff to incorporate the surveillance boards into the daily clinical rounds.

Contribution of the doctoral project team (if applicable)

Full collaboration with multiple stakeholders took place to develop a quality improvement plan. Each member of the VQIT played a key role in developing the plan, implementing the changes, and analyzing the data. As the team leader, I had oversight and responsibility for the entirety of the project. The clinical informatics nurses and information systems analyst had a vital roles in the project by ensuring the computerized technology was fully functional. These team members worked collaboratively with the nursing leadership and staff to assess the placement of the large surveillance board as well as all of the metrics listed. Through the unit-based shared governance, nursing leadership and the direct-care nursing staff helped develop the process change to help improve the vaccine administration process.

All recommendations within the quality improvement plan were developed by the VQIT. Final recommendations were presented by the direct-care nurses and leadership on the project unit. Recommendations were based on the current experiences during the project time. Minor changes continued to be made to enhance the electronic medical record and electronic surveillance board. These changes included increasing the font size on the nurse's station board, which was put into place immediately based on recommendations. Another minor change included making the vaccine column red in color to stand out among the other listed indicators. Some of the future recommendations made by the direct-care nurses and VQIT cannot be put into place due to limitations of the electronic health record. The nursing informaticist on the VQIT will continue to pursue these recommendations to enhance the electronic medical record.

The vaccine quality improvement team was involved in developing the final recommendations for other units to adopt the surveillance boards. Plans to extend the project beyond the DNP doctoral project include sharing the best practices used in the PDSA to other patient care units in the organization. This will be accomplished through the unit-based and organization performance improvement committees. Since each unit is expected to conduct unit-based leadership rounds and staff huddles during each shift, each unit will be encouraged to incorporate the best practices in to their own specific work flow. After the DNP project completion, surveillance boards will continue to be placed in all nurse's stations. The director of nursing informatics, a member of the vaccine quality improvement team, received approval from the appropriate leadership group to set aside funds to purchase large surveillance boards for each unit. The plan is to continue working with each unit throughout 2018 to implement the surveillance boards.

Strengths and limitations of the project

The main strength of this project was the inclusion of all patients on one unit being accounted for in the vaccine administration rates. The medical-surgical unit selected for this project is the largest unit in the organization caring for the geriatric population. Another strength of the project was the unit having an established and approved influenza and pneumococcal nurse-driven protocol. The VQIT did not have any recommendations to make to this protocol after a thorough review, prior to the start of the project. For the purpose of this quality improvement project, no limitations were noted.

Because this project focused on a quality improvement plan using the PDSA model, any performance improvement change can be used using this approach. This DNP project focused on increasing adherence to an established protocol demonstrated by an increase in vaccine administration. The project site is currently redesigning the organizational quality structure and governance model. The goal of the organization is to increase evidence-based practices and reduce clinical variation, using PDSA as the performance improvement tool. As the organization moves forward with the new structure, many new evidence-based practices changes will be put into place.

Section 5: Dissemination Plan

This project will be disseminated through various forums in the institution. The project will be presented at multiple clinical leadership forums and the shared governance performance improvement teams. The project will also be presented to the newly approved Quality and Performance Improvement Steering Committee. Dissemination of the project will take place by implementing the surveillance boards and sharing best-practices for rounding by the unit involved in this project. The project result will be shared with each patient-care unit as surveillance boards are implemented.

Since assessing and administering influenza and pneumococcal vaccines is a national requirement for hospitals, disseminating this information to the broader nursing profession will be important. The chief nursing officer has requested to have the director of nursing informatics and myself submit abstracts for poster presentations. These included submissions to the annual Magnet conference and the Organization of Nurse

Leaders in New Jersey. These conferences will provide a forum to demonstrate positive results when technology is used as part of daily workflow.

Analysis of self

Leading this project as a project manager provided me the opportunity to utilize nursing experience and the knowledge gained throughout the DNP program. Leading a quality improvement team to focus on addressing a gap in practice and implement an innovative solution allowed the unit to increase adherence to an already established nurse-driven protocol. As a practitioner, this experience will be relevant to any continued work as part of long-term professional goals. Obtaining a Doctorate in Nursing Practice provides the educational knowledge and experience to advance the nursing profession (AACN, 2006). The experience of developing a quality improvement team and quality improvement plan to address a gap in practice will be continued through my professional work.

Although the project has been completed, the medical-surgical unit continues to use the technology as part of daily practice. Without formally implementing an improvement team with appropriate stakeholders, the project may have experienced challenges. Each member of the vaccine quality improvement team had a vital role in the project, especially the clinical nurses. The clinical nurses had to understand the value of evidence-based practice and the associated autonomy with a nurse-driven protocol. Once that was understood and the surveillance boards were used during clinical rounds, adherence increased with more eligible patients receiving either the influenza and/or

pneumococcal vaccine. The design of the project will continue to be used for other gaps in practice the unit may encounter.

Summary

This doctoral project focused on addressing a gap in practice to increase adherence to an established evidence-based, nurse-driven protocol. A quality improvement team was formed to develop an improvement plan to increase the number of discharged patients receiving the influenza and/or pneumococcal vaccine. In order for this project to be successful, engagement by the quality improvement team, particularly the clinical nurses was essential to the success of the doctoral project. Allowing the team to develop the plan and determine the best-practice and innovative solution provided autonomy and accountability to the unit. Engaging the nurses to develop the solutions for implementation provided motivation to the nurses to carry out their recommendations. My role was to facilitate the project and provide guidance to the team to improve patient outcomes.

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