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Catheter Associated Urinary Tract Infection Prevention Education

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Walden University

College of Nursing

This is to certify that the doctoral study by

Mary Jo Roskos

has been found to be complete and satisfactory in all respects,
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the review committee have been made.

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Walden University
2023

Abstract

Catheter Associated Urinary Tract Infection Prevention Education

by

Mary Jo Roskos

MSN, Walden University, 2010

BSN, Walsh University, 2004

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

August 2023

Abstract

Catheter associated urinary tract infections (CAUTIs) are infections that happen in the urinary tract in men and women when foley catheterization is not done using strict aseptic techniques. Bacteria can then travel up the urinary catheter into the bladder; therefore, contaminating urine in the bladder. This project site's nursing staff was experiencing a lack of knowledge regarding CAUTI prevention. This lack of knowledge on the importance of sterile technique when inserting urinary catheters can lead to CAUTIs. The project question for this project addressed whether the educational program on the importance of a strict sterile technique on urinary catheter insertion and maintenance improves the knowledge of nurses as evidenced from pre and post survey. Knowles's adult learning theory and the analysis, design, development, implementation, evaluation model was used as the foundation for this project. Ten long-term care nursing staff members participated in the educational project on CAUTI prevention. A pre- and posttest design was used to collect and analyze data as well as determine if the education was effective. Upon completion of the project, results were then placed into Excel to help determine the overall mean scores between the pre- and posttest results. The results showed a mean item score increase of a 1.71 from the pretest (M = 3.29) to the posttest (M = 5.0) suggesting an increase in knowledge on CAUTI prevention, and indicated the presentation was helpful to the nursing staff. Positive social change can occur through improved staff competency and regular educational sessions, which can lead to fewer CAUTI cases. This education should continue to promote awareness of CAUTI prevention techniques among the nursing staff.

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Dedication

I want to dedicate this project to my husband. He has stayed with me and encouraged me throughout this entire DNP process, and I could not have done this without him. I would also like to dedicate this to my colleagues. They have been so patient with this process.

Acknowledgments

I would like to acknowledge Dr. Robert McWhirt and Dr. Joan Hahn. They both encouraged me to finish as well as give me tremendous help along the way. I also want to thank my family for their patience. Last, but not least, I want to thank you God for giving me the knowledge and strength to finish.

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Section 1: Nature of the Project

Introduction

Urinary tract infections (UTIs) are the most common hospital acquired infections in the nation and count for up to 40% of infections reported yearly (Chibekee, 2021). The complications of UTIs are associated with increased morbidity and mortality rates among patients in hospitals and long-term care facilities (Davis, 2019). These complications include sepsis, change in mental status, and acute kidney injuries.

The lack of knowledge on the importance of sterile technique when inserting urinary catheters can lead to catheter associated urinary tract infections (CAUTIs). When a sterile technique is not implemented during urinary catheter insertion, patients are at risk of developing septicemia and prolonged stays in the hospital (The American Nurses Association, 2019). CAUTIs also have significant associated costs to the health service, which can become as high as $99 million dollars per year, internationally (Davis, 2019).

When urinary catheters are not inserted via strict sterile technique, a UTI can start to develop within 24 hours, and if the urinary catheter remains in place for a long period of time (more than 24 hours), then infection can increase even more after a 48-hour period (Root et al., 2021). Approximately 70% of UTIs have been associated with indwelling urinary catheters, and researchers have discovered that nearly half of these infections are associated with improper insertion of urinary catheters (*n*=504) (Clayton, 2017).

Problem Statement

According to the National Quality and Disparities Reports (2020), a benchmark for all international hospitals and long-term care facilities giving urinary catheter care to patients is a benchmark number of 1.000 or 1%. This means that for every 1,000 days of urinary catheter care per year given to patients, hospitals will need to have 1% or below in CAUTI incident rates. The aim of this educational, DNP project is to increase the knowledge of the nursing staff on the importance of practicing sterile technique when inserting a urinary catheter. The lack of knowledge on the importance of sterile technique when inserting urinary catheters can lead to CAUTIs. When sterile technique is not implemented during urinary catheter insertion patients are at risk of developing septicemia and prolonged stays in the hospital (The American Nurses Association, 2019). CAUTIs also have significant associated costs to the health service, which can become as high as $99 million dollars per year, internationally (Davis, 2019).

When urinary catheters are not inserted via strict sterile technique, a UTI can start to develop quickly, and it is vital for nurses to know the signs and symptoms of a UTI as well as how to prevent it (Root et al., 2021). Approximately 70% of UTIs have been associated with indwelling urinary catheters, and researchers have discovered that nearly half of these infections are associated with improper insertion of urinary catheters (*n*=504) (Clayton, 2017).

The problem identified at this practice site for this educational, Doctor of Nursing Practice (DNP) project is that the nursing staff are not receiving updated education to help prevent catheter associated urinary tract infections in their patient

population. CAUTIs are infections that happen in the urinary tract in men and women when foley catheterization is not done using strict aseptic techniques. Bacteria can travel up the urinary catheter into the bladder; therefore, contaminating urine in the bladder (Clayton, 2017). This leads to increased risk for septicemia, changes in mental status, and possible kidney damage. This project focused on increasing the staff's knowledge on proper techniques for catheter insertion and management towards a goal of reducing infections.

Purpose Statement

CAUTIs can be preventable, the purpose of this project was to prevent incidences of these occurring in a long-term care facility. The DNP educational project was aimed at educating a group of the nursing staff regarding the lack of knowledge when inserting urinary catheters in patients. The clinical setting was where higher CAUTIs can become more prominent. Thus, this project offered the educational tools for the nursing staff to learn proper techniques that could help prevent CAUTIs from reoccurring.

The gap in nursing practice was a lack of knowledge and adherence to literature supported evidence to help reduce infections in the patient population. Because this project was aimed at preventing CAUTI cases at this practice site, the practice focused question that guided this evidence-based DNP project was, "Will a staff educational program on the importance of a strict sterile technique on urinary catheter insertion and maintenance improve staff knowledge towards the ultimate goal of reducing CAUTI infections at the site?" The practice focused question was relevant to the gap in nursing

practice because it aimed to educate the nursing staff in the hopes of preventing CAUTIs. This can then lead to better patient outcomes and decrease hospital admissions.

Nature of the Doctoral Project

This doctoral project was an evidence-based nursing staff education that focused on preventing CAUTIs for patients at this site. Sources of evidence for the development of this staff education have included peer-reviewed research literature and evidence-based clinical practice guidelines that have been published within the last 5 years. Participants surveyed questions given to them pre- and post-presentation through WORD Likert Questionnaire. Results of the tests were analyzed and helped in evaluating the participants' knowledge after the education session was complete. Analysis of the surveys' results were evaluated through EXCEL.

Significance

The significance of this project was to measure the outcomes of a specific teaching in CAUTI prevention and compare the completed surveys from nursing staff and to test if the teaching was helpful. This type of theme is relevant to this DNP project because it established the basis of educating nursing staff toward a better outcome in patient care. The evidence that educating nursing staff supports early awareness for the appropriateness toward the prevention of CAUTIs was the focus. The conceptual framework used to guide this interventional project was supported by literature review..

Summary

The specific aim of this DNP project was to develop, implement, and evaluate the implementation of a nursing protocol and to help prevent any number of CAUTI cases. An additional aim was to help increase nursing knowledge regarding catheter care as well as to empower the management of care toward their patients. Once education was completed, I measured how the project succeeded toward the specific goal. Section 2 of this paper includes a discussion of models and theories that have helped build this project. Section 2 also includes background information to justify the reason for this staff education project as well as describe my role in the project team.

Section 2: Background and Context

Introduction

The gap in nursing practice was that basic educational literature calls for proper sterile technique when inserting a urinary catheter, but as evidenced by this site's nursing staff having a current lack of knowledge in CAUTI prevention, this site would benefit from an educational program. Because this project was aimed at preventing the CAUTI rates at this practice site, the practice focused question that guided this evidence based, DNP project relevant for this gap in practice was, "Will the educational program on the importance of a strict sterile technique on urinary catheter insertion and maintenance improve the knowledge of nurses as evidence from pre and post survey?" The practice focused question was relevant to the gap in nursing practice because it aimed to educate the nursing staff in the hopes of preventing CAUTI in patients in a long term care facility.

An education presentation for the nursing staff on the proper technique of urinary catheter insertions was implemented at this site to help prevent CAUTIs. The educational project's benefit was to offer education for the nursing staff and help them to better understand the implications of CAUTIs in their patients that they take care of.

Concepts, Models, and Theories

Prevention practices are essential for nursing as well as confidence in skills. For the DNP project, I used the Knowle's adult learning theory and the analyze, design, development, implementation, and evaluation (ADDIE) model to help guide this educational process (Cullata, 2023). The Knowle's theory helps educate a population of

adult learners by centering on experience as a foundation for learning (Cullata, 2023). Knowles emphasized how adult learners are self-directed; therefore, they take responsibilities for their own actions.

The rationale for using the ADDIE Model is because it is a commonly used detailed tool in educational settings. This model is also used to help educators implement and analyze projects that are concerned with evidence-based practices as well as helping to evaluate outcomes that were derived from the beginning of the educational process (Cullata, 2023). Once outcomes are evaluated, I then determined if the educational process was useful.

Primary writings used by scholars in different educational settings nationally, have used the ADDIE model for individual instruction and sociocultural designs (Ebru, 2020). The use of this model's flexibility toward research relates well with other education models. Questionnaires and surveys are commonly implemented during the evaluation stage of ADDIE; therefore, scholars find it easier to determine the results of the study (Ebru, 2020).

Knowles' Adult Learning Theory

Knowles' model was used because of the emphasis on adult learning development in an educational program regarding the prevention of CAUTI. The essential principals of Knowles' theory include the following concepts:

- Adults are responsible for their own planning and evaluation (Calluta, 2023). Adults need to understand why this type of education is important in preventing harm to people they are caring for.

- Adults learn through own trial and error; therefore, it becomes a continual learning process (Calluta, 2023). Their own experiences are the most important aspect of learning.
- Adults learn best when it is most related to their jobs (Calluta, 2023). As life-centered learners, they learn more effectively when the educational process relates to personal experiences.
- Adults learn best when it is more problem-centered rather than content driven (Calluta, 2023).

The ADDIE Model

I used the ADDIE model as my foundation for this educational project on prevention of CAUTI. The five principles of ADDIE are as follows:

- The analysis phase involves creating a plan, develop instructional designs, and analyze what skills are needed for a project (Spatioti et al., 2021). This helps determine the problem.
- Designing phase is a review process that involves looking at what data was collected during the analysis phase.
- Development phase involves identifying specific goals using the core content (Spatioti et al., 2021).
- Implementation phase involves a chosen delivery message such as preparing the learning environment and giving instructions to staff (Spatioti et al., 2021).
- Evaluation phase determines if goals were met. Also, additional feedback from the learners through surveys are used during the evaluation phase.

Relevance to Nursing Practice

This DNP project benefits nursing practice because it addressed how to prevent urinary tract infections in patients with existing or newly inserted foley catheters. Approximately 75% of hospitalized patients that receive urinary catheters, during their hospital stay, acquire urinary tract infections (Centers for Disease Control and Prevention [CDC], 2023). Too many patients are at risk for UTIs because foley catheters are not inserted correctly. Therefore, it is important the foley catheters should not only be inserted through strict sterile technique, but these foley catheters should only be used for appropriate situations and quickly discharged when they are no longer needed (CDC, 2023).

Since nurses are the main hospital staff members that insert foley catheters into their patients, it is important that routine UTI prevention education is provided throughout their practice. The more nurses that understand UTI prevention when inserting foley catheters can help to decrease the high percentage of CAUTI cases yearly (CDC, 2023).

Hernandez et al. (2019) studied the standard practices nurses were implementing when inserting urinary catheters. The authors evaluated 50 nurses by having them complete a bundled check list to determine if their documentation of catheter insertions were being done according to strict aseptic guidelines (Hernandez et al., 2019). Thirty one percent (n=54) were found to complete the checklist correctly, and the remaining nurses did not. The authors determined that the remaining nurses that did not complete

the entire checklist and could be considered suboptimal in their performance when inserting urinary catheters (Hernandez et al., 2019).

Ferguson (2018) conducted a quality improvement study to help enhance the nursing staff's understanding of indwelling catheter care. A total of 59 nurses from an acute care hospital participated in a 3-month educational involving in-class instruction, skills demonstrations, and post-testing. Results of *t* tests showed that the nurses stated they were more confident in performing CAUTI prevention measures after their education was completed (Ferguson, 2018). There was also a noticeable decline in CAUTI rates as well. The hospital had a 7.98% CAUTI rate that had decreased 0% CAUTI incidents for 1,000 days after the educational program was completed; therefore, the findings supported that the educational project was needed (Ferguson, 2018).

Carr et al. (2017) conducted a quality improvement study that consisted of 35 registered nurses and 15 patient technicians in a primary care unit. Each participant attended a CAUTI prevention workgroup session that focused on teaching staff members sterile techniques and urinary catheter care. Each participant was then audited by nursing managers, nursing educators, and nursing champions after the education sessions were complete (Carr et al., 2017). After implementing the project, 95% of the participants audited adhered to what they have learned during the education settings, and the results showed a 38% CAUTI reduction rate for at least 22 months (Carr et al., 2017).

Shaver, Eyerly-Webb, Gibney, Silverman, Pineda, & Solomon (2018) conducted a cohort study surveying nursing knowledge and attitudes toward urinary catheter

insertion and maintenance according to CDC guidelines. There were forty-eight participants that consisted of various nurses from medical and trauma units. The participants were surveyed with a Likert Questionnaire asking them the best methods to prevent CAUTI rates. The questionnaire was designed to survey the nurses' confidence toward urinary catheter care in their patients (Shaver et al., 2018). The study showed that the nurses they surveyed felt more confident if they did not insert a urinary catheter when attempting to implement aseptic techniques. The authors concluded that multifaced intervention was needed to educate the nurses and increase their confidence implementing urinary catheter care. This study showed that the nurses they surveyed felt more confident if they did not insert a urinary catheter when attempting go implement aseptic techniques.

Root, Horigan, & Lough (2021) performed a qualitative study in the *Clinical Nurses Forum* regarding prevention of CAUTI by educating the emergency nursing staff, in the hospital setting, about the proper use of sterile technique when inserting a urinary catheter. They utilized a plan, do, check, and act (PDCA) model 10 minutes before nurses started their shift. This was to help serve as a template and to determine if CAUTI prevention was improved. The largest barrier of this study was the short amount of time given during educational sessions. The overall results showed that when insertion of a urinary catheter is rushed, CAUTI is more of a risk factor for the patient.

Summary of the Literature

The above studies demonstrate the need for educating nurses to increase their knowledge on the importance of urinary catheter care and the prevention of CAUTIs.

According to the Center of Disease Control (CDC) 2021, CAUTIs can decrease from 69% to 10% nationwide if proper infection control measures are practiced regularly in hospitals. This could also lead to a better plan of care as well as decrease the overall medical costs for the patients.

This doctoral project focused on educating nursing staff on proper sterile techniques when inserting foley catheters. The presentation for this project assisted the nursing staff to become more aware of CAUTI prevention. The pre and post surveys helped with how the nurses understood this importance and are now willing to help with improvements in their practices.

Local Background and Context

The project site is a long-term care facility in the north United States. Keeping nursing staff educated regarding CAUTI prevention is the priority. Currently the policy that is in place for CAUTI prevention was not taught regularly to nursing staff, and the nursing staff was lacking the knowledge about more specific risks to consider when inserting foley catheters during patient care. The leadership at this site identified a lack of knowledge of CAUTI prevention among nursing staff because there was currently no process of education for their policies. The nursing staff were in need of an educational program to help them stay up-to-date on the CAUTI prevention policy that is currently in place.

This project site is accredited by the Ohio Department of Health and Human Services. They receive payment mainly from federally funded Medicare and Medicaid programs. The project site is mandated to maintain a safe environment for all residents

and staff to the state yearly as well as by unannounced survey visitations. The organization is adamant about education for the staff. This doctoral project focused on the strategies to help promote awareness of preventing CAUTIs.

Role of the DNP Student

My professional information and relationship for this DNP project was to develop a staff education program and present an educational presentation that can be implemented due to the contingent success of the results. The American Association of Colleges of Nursing (AACN), 2006, Essential III indicates the importance of an education program when addressing nursing practice gaps. This information is useful for my project and gives me the motivation to continue.

Another motivation for this doctoral project was to help improve the knowledge of the nursing staff regarding prevention of CAUTI in a long-term care facility. An important perspective that I had was to predetermine any bias toward diverse adult learners in nursing. It is important to note that learners understand information in different ways, and I needed to take individualized approaches toward the overall goal in this project.

Role of the Project Team

There was a small project team for this educational project. The director of nursing, director of educational services, and myself coordinated this project. The director of education and a doctorate prepared colleague served as the content experts. They also reviewed the material before and after the delivery of the program. The director of education services provided support and assistance in the planning and

implementation of this project. Planning and review for this project was completed through emails.

Summary

I used recent evidence from peer-reviewed literature to establish prevention of CAUTIs in patients in long-term care. The gap in knowledge addressed in this project was the lack of a comprehensive education program specific to preventing catheter associated urinary tract infections. The posttest as well as the pretest were used to develop the project's goals. In the next section, I will discuss the data collection and the analysis process that was used for this project.

Section 3: Collection and Analysis of Evidence

Introduction

The gap in nursing practice was that basic educational literature calls for proper sterile technique when inserting a urinary catheter, but as evidenced by this site's nursing staff having a current lack of knowledge in CAUTI prevention, this site needed to benefit from an educational program. In this section, I focus on clarifying the practice-focused question for this project, emphasizing its purpose, and defining key aspects. The sources of evidence behind the project were analyzed as well as the listings of how this project was to be completed.

Practice-Focused Question

This practice site asked me to update nursing staff on their policies that help prevent CAUTIs in their patients by providing an education program. The practice focused question that guided this evidence-based DNP project for this nursing staff was, "Will a staff educational program on the importance of a strict sterile technique on urinary catheter insertion and maintenance improve staff knowledge towards the ultimate goal of reducing CAUTI infections at the site?" To clarify the purpose of this project, the practice focused question needed to be relevant to the gap in nursing practice, and it needed to aim toward educating the nursing staff in the hopes of preventing CAUTI cases in this long-term care facility. The practice question for this project aligns with the gap in nursing knowledge at this site because the key aspect of this project pertains to the education of the nursing staff and preventing CAUTIs in the patients for whom they care.

Sources of Evidence

For this project, I reviewed the most updated evidence-based practices in recent research articles regarding CAUTI prevention. Articles and journals with current information, within the last 5 years, have been a foundation for this project. I then developed an education program that aligns with the literature review that was completed. Members of the project team reviewed this project's goals and implementation before it began to conduct a content expert review, and the sources of evidence were an important aspect for the rationale of the project. The relationship of the evidence toward the purpose of this project were indicated more toward why this project needed to be implemented. The sources of evidence that were used for this project were from the CDC evidence-based practice guidelines. The CDC (2023) has step-by-step guidelines listed on their website that gives detailed information on how to properly insert urinary catheters as well as how to directions on maintenance and prevention of CAUTIs. To clarify, the literature reviewed was the rationale for the implementation of this education program. The collection and analysis of this literature evidence provided the appropriate way to address the practice-focused question.

Evidence Generated for the Doctoral Project

Institutional review board (IRB) approval was done before the project began. The Walden University IRB approval number, 06-12-23-0072799, was given to me via email before this project was implemented. The director of education at the clinical site then began gathering participants for the education presentation. This project was guided by review of literature, CDC guidelines, and survey tools. Survey Monkey® was going to be

the original evaluation method for this project, but the site did not have the technology for this at the time of the presentation. Instead, the Likert Scale questions on Word documents were given to the participants to help gather the data needed for this project. The templates that are offered in Word were edited in a Likert questionnaire format to help analyze results. This was an easy way of measuring the pre- and post-evaluations. The mean competence level of the nursing staff was measured by comparing the pre and post survey results from the Likert questionnaires.

Participants

The director of educational services and a DNP level colleague served as the content experts. Both helped to organize and plan the educational program. They also checked for accuracy regarding the delivery and evaluations. Other participants were the learners completing the training process. Participation in this project included an educational program on power point slides and a pre- and post-Likert questionnaire evaluation. Nursing staff that care for patients with foley catheters were chosen as the learners for this project, and they were selected anonymously. There were 11 total members participating in the educational program at the time, but one member was excluded because she had to leave before the presentation was complete. Each participant was given a number, A1 through A11. This allowed the project to adhere to the plan of anonymous collection of data. The relevance for choosing the nursing staff is because they not only monitor patients with foley catheters, but they insert and maintain foley catheters as well. Because of this, choosing the nursing staff was relevant to the practice-focused question.

Procedures

I used the Likert Scale questionnaire through a Word template to help collect evidence that aligns with the practice-focused problem and the literature review. Once literature review was completed, correlation of all the data was collected with the relevant information in this project. A pre- and post-evaluation tool (Appendix B) was developed to evaluate the success of this project using a Likert questionnaire. The assessment of the participants' feedback from the evaluations helped serve as possible future educational policies for this site. Once results were analyzed, recommendations for any changes were indicated, as needed.

Protections

Before implementing this project, guidelines from the Walden University DNP Staff Education Guide were obtained by the signing of a site agreement as well as having Walden University IRB approval. Participants were protected through the use of an IRB-approved consent form shared before participating. There was no patient contact or communication. Only invited nursing staff were the participants. They were also given a full explanation of the project's purpose and educational process. They were given the right to withdraw at any time without the threat of reprisal. After informed consents were handed out, pretest evaluations prior to the educational session were done. This project was solely based on an educational program, and there were no risks to the participants. The data was collected and will be held in a locked drawer and on a password-protected computer for 5 years before all of the project material is deleted.

Analysis and Synthesis

A WORD Likert Scale questionnaire was used in this study. This tool can be designed to help educators implement and analyze projects that are concerned with how learners implement evidence-based practices. Following the education, an anonymous post-test evaluation through Likert was compared to the pre-test, and this allowed a review of the responses to determine the significance in the increase in knowledge of the staff. Both the pretest and posttest had the same questions.

After the training and education of this project to the nursing staff was carried out, pre- and post-evaluation results from the participants were analyzed by calculating the mean scores in EXCEL. The education session was at the facility in the conference room following the pre-test evaluation. Following the educational session, the nurses were given a post-test evaluation.

Participants had Likert scale questions given to them pre- and post-presentation through the use of a WORD format that evaluated their knowledge of CAUTI prevention in patient care. Once the education presentation was finished, results of the tests were analyzed on an EXCEL spreadsheet to obtain the differences in the overall mean scores. This helped in evaluating the participants' knowledge after the education session was complete. The analysis of the pre and posttest results were then recorded on the EXCEL spread sheet in a table format. This was a useful tool to determine if the training was helpful. Results from the evaluation tools showed pinpoint areas of weakness as well as strengths from the nursing participants in both the pre and posttests. It is yet to be determined if the educational project can be used in the future.

Summary

This DNP project's purpose was to develop a nursing staff education that focuses on prevention of catheter associated urinary tract infections for patients with foley catheters. The key points in the literature review were used to help support and develop this project. Section 4 of this proposal will include the findings and recommendations for this project.

Section 4: Findings and Recommendations

Introduction

The purpose of this project was to educate nursing staff on the CDC's proper technique of inserting and maintaining a foley catheter into their patients. CAUTI prevention was the focus of the educational presentation to the nursing staff. The guiding project question was, "Will a staff educational program on the importance of a strict sterile technique on urinary catheter insertion and maintenance improve staff knowledge towards the ultimate goal of reducing CAUTI infections at the site?" The objectives of this were to help increase the nursing staff's knowledge on how to prevent CAUTIs in their patients.

Sources of evidence to support the development and implementation of the project included conducting a literature review, speaking with the nursing educator at the facility about CAUTI prevention teaching, and reviewing the training with content experts. When presenting evidence-based practices, an educational presentation on CAUTI prevention could decrease the incidences (CDC, 2009).

A pre- and postsurvey was provided to the nursing staff of which consisted of seven nurses and four nursing assistants. The evaluations (Appendix B) consisted of questions that were formatted using the Likert Scale: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, and 5. Strongly agree. The data were entered, calculated, and analyzed manually using Excel statistical formulas.

Findings and Implications

There was a total of 11 nursing staff members, all female, who participated in this DNP project. One of the members was excluded because she did not stay for the entirety of the presentation; therefore, 10 members were counted as full participants. All 10 members completed both the pre and post anonymous evaluation forms. Sixty percent (*n* = 6) of the staff members in this education presentation were nurses and 40% (*n* = 4) were nursing assistants. All participants worked during the day shift hours and were assigned different units throughout the facility.

Participants were given a consent form before the presentation. They were also given a PowerPoint handout that allowed them to take notes as needed. No electronic presentation was available for this project. Each participant was anonymous, and no names were given to me as the presenter. All participants were given letters and numbers ranging from A1 through A11 on envelopes that contained the pre- and posttest surveys. They were asked to fill out the presurvey before the education presentation then the postsurvey when the presentation was done. There were no areas on the pre- and post-evaluations that asked for names.

The pre- and posttests (Appendix B) contained seven identical questions specific to this DNP project. Each staff member was asked to rate their knowledge of understanding of CAUTI prevention before and after the presentation. The questions were the exact same questions and consisted of Likert scale type questions ranging from strongly agree to strongly disagree. Table 1 and 2 below consists of the Likert scale questions used for this presentation. Table 1 contains the item questions asked and the

mean scores from the pretests, which indicate the participants' knowledge base of CAUTI prevention before the presentation. Table 2 contains the item questions asked and the mean scores from the posttests, which indicate the participants' knowledge base of CAUTI prevention after the presentation. Each question was the same before and after the completion of this project. The mean scores were used as the comparisons of the pre and post evaluations and were calculated by using Excel software.

Pre- and Posttest Results

The pre- and posttests were completed by 10 participants (*N=10*). Upon completion of the project, calculation of the mean scores were completed by using EXCEL spreadsheet to compare the mean from the pre-and posttest results. The pretest average total was 23.0 with a mean item score of 3.29 (*M=3.29*), see Table 1. The posttest average total was 35.0 with a mean item score of 5.0 (*M=5.0*), see Table 2. The total score difference between both evaluations was 12.0 with a mean item score difference of 1.71 (*M=1.71*). The posttest represents an increase in knowledge when compared to the pretest results; therefore, suggesting that the learning from this project successfully occurred.

Table 1

Summary of Pretest

Content Pretest	Mean Score
Do you have a strong knowledge of how to care for patients with foley catheters?	5.0
Do you have the tools and resources needed to provide optimal patient care for those with foley catheters?	5.0
Do you have a high level of confidence to educate patients on the importance of daily care of foley catheters?	2.0
Do you know where to find the CDC guidelines?	2.0
Do you know how to complete a step-by-step process regarding foley catheter insertion and maintenance?	2.0
Do you know the importance of sterile technique?	5.0
Do you know where to find your policies regarding CAUTI prevention?	2.0
Total score	23.0
Mean item score	3.29

1=*Strongly disagree to* 5=*Strongly agree*

Table 2

Summary of Posttest

Content Pretest	Mean Score
Do you have a strong knowledge of how to care for patients with foley catheters?	5.0
Do you have the tools and resources needed to provide optimal patient care for those with foley catheters?	5.0
Do you have a high level of confidence to educate patients on the importance of daily care of foley catheters?	5.0
Do you know where to find the CDC guidelines?	5.0
Do you know how to complete a step-by-step process regarding foley catheter insertion and maintenance?	5.0
Do you know the importance of sterile technique?	5.0
Do you know where to find your policies regarding CAUTI prevention?	5.0
Total score	35.0
Mean item score	5.0

1 = *Strongly disagree to* 5 = *Strongly agree*

The results of the data analysis indicated an improvement in staff knowledge toward CAUTI prevention. This project now has the potential to bring in a social change within the nursing staff and patients. This project showed that nurses learned from an educational session on how to care for patients with foley catheters. Nurses learn best with frequent educational reminders of how patient care needs to be implemented (American Nurses Association,2021). This project completed a need and increased the awareness of the nursing staff on how to care for patients with foley catheters as well as how to prevent CAUTI cases according to the CDC guidelines.

The impact of this project includes an effective, evidence-based educational presentation the helps to increase the knowledge of the nursing staff as well as promote more evidence-based practices that promote patient health. This educational program can then be used in the future as a teaching guideline for newer staff members. Prevention of CAUTIs can ensure patients receive appropriate care as well as increase patient outcomes.

Recommendations

The results from this nurse staff education project indicated an increase in knowledge among the nursing staff. The recommendation for this is to implement an CAUTI prevention education presentation as an annual competency for current nursing staff. It is also recommended to have this presentation become standard practice for all newly hired nursing staff. This could then evaluate the effectiveness of this type of training in terms of reducing rates of CAUTI in a later quality improvement initiative. Another recommendation is to offer nursing staff refresher courses on CAUTI prevention

online; therefore, allowing them to review information as often as needed. There were many participants that indicated they learned new material from this presentation and wanted to have this more available for self-learning at home. The last recommendation is to begin frequent monitoring of patients with foley catheter insertions. This could alert nursing staff of any changes in a patient's condition and prevent further complications.

Contribution of the Doctoral Project Team

This doctoral project team consisted of the site's director of education, the DNP prepared colleague, and the nursing staff. All members provided support and assistance throughout the development and implementation process. All team members determined the accuracy of the presentation by giving their expertise before and after the completion of this project. The director of education prepared the meeting as well as gathered all participants that work with patients with foley catheters. The DNP prepared colleague helped with editing the projects evidence-based information from the CDC before the project was started. The director of education will continue to evaluate the impact of this project and work toward making possible changes at the site following my recommendations.

Section 5: Dissemination Plan

The results of this project indicated that this project's goals were met. The goal for this project's presentation to be implemented yearly and to new nursing staff has yet to be determined, but the leadership is very receptive regarding this recommendation. The ongoing goal of this project will be to use this as a possible model in a continuum for future nursing staff because of the simplicity demonstrated to the nursing staff regarding where to find CDC guidelines on CAUTI prevention.

The goal of this project was to prevent or decrease the number of CAUTI patients at this site. This goal does not limit itself to one particular unit, nor should it be limited to teaching this material at this facility alone. The results of this project will be disseminated to the director of education at the site. This can then be a possible PowerPoint presentation for their new staff or for competency reviews. Knowledge from this educational project can also be applied to many populations in different nursing facilities, if needed.

Analysis of Self

This project has been a journey that I feel I will never forget. This has helped me grow in my practice as a nursing educator and as a patient advocate. I was not an employee at this project site, but I was very proud to see how much this site cares for their patients. They were willing to take the time to learn and become familiar with evidence-based practices that could help their patient population. One of the long-term goals that I have is to continue to use my role as a DNP in ways that will educate others about evidence-based practices that benefit patient outcomes. The DNP nurse educator is

in a lead role to coordinate an interdisciplinary team toward educating communities regarding best healthcare outcomes and practices (ANA, 2021). I would like to use this project's success as an example of understanding the importance of frequent education for nursing staff as well as in the community.

The project also improved my skills in scholarly research and as a nursing educator. The completion of this project indicated to me the importance of educating nursing students as well as nursing staff. This has been met with many challenges. I had to change sites three times because of losing my first preceptor and another site refusing to follow through with the project. When analyzing the data for this project, it conveyed that all the participants met the objectives and had an increase in knowledge because of this educational presentation. This project now has the potential of being used to teach other nursing staff members where to find resources as well as how to implement practice that increases the number of improved patient outcomes.

Summary

Teaching the nursing staff evidence-based practice when working with patients that have foley catheters was the goal of this project. Because this is a vital part of nursing and patient outcomes, this education presentation was a necessary tool to use. This project can have the potential to help better patient outcomes as well as be used to teach nursing staff how to implement evidence-based practices. Because this type of education uses evidence-based resources that were easily found through the CDC, it can be implemented in any nursing unit.

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Appendix A: Education Presentation

CATHETER ASSOCIATED URINARY TRACT INFECTION PREVENTION

CAUTI PREVENTION GUIDELINES

MARY ROSKOS, MSN, RN

WHAT IS THE NUMBER ONE CAUSE OF AUTI?

This Photo by Unknown Author is licensed under CC BY

CDC, 2023 GUIDELINES TO PREVENT CAUTI. HTTPS://WWW.CDC.GOV/INFECTIONCONTROL/GUIDELINES/CAUTI/INDEX.HTML

- The CDC has guidelines that are recommended for healthcare employees treating patients with urinary catheters.
- According to the CDC, 2015, approximately 75% of all hospital patients with urinary catheters develop UTIs.
- Between 15-25% of all hospitalized patients receive a urinary catheter as part of their treatment

EXAMPLE QUESTIONS TO HELP PREVENT CAUTI

- *Who should receive urinary catheters?*
- *For those who may require urinary catheters, what are the best practices? Specifically, what are the risks and benefits associated with this?*
- *What are the best practices for preventing CAUTI associated with obstructed urinary catheters?*
- CDC. (2009). Guideline for prevention of catheter associated urinary tract infections. https://www.cdc.gov/infectioncontrol/guidelines/cauti/index.html

GUIDELINES FOR PROPER TECHNIQUE FOR URINARY CATHETER INSERTION

- HAND HYGIENE
- MUST HAVE COMPETANCY SKILL MASTERED
- STERILE GLOVES
- ROUTINE USE OF LUBRICANTS ARE NOT NECESSARY
- UNLESS OTHERWISE INDICATED, USE SMALLES BORE CATHETER SIZE.

GUIDELINES CONTINUED….

- MUST ALWAYS BE ASEPTIC
- MUST KEEP STERILE FIELD
- HAVE ASSISTANCE WHEN NEEDED
- PROPERLY SECURE INDWELLING CATHETERS
- IF BREAKAGE OR ASEPTIC TECHNIQUE IS BROKEN, REPLACE THE CATHETER AND COLLECTION SYSTEM (CDC, 2015)

OBSTRUCTION THAT CAN LEAD TO UTI

- CHECK FOR KINKS IN TUBING
- NOTIFY HCP IF THERE IS NONE TO LITTLE DRAINAGE IN THE COLLECTION SYSTEM
- NEED ORDER FOR IRRIGATIONS.
- MAY NEED TO CHANGE TO LARGER BORE CATHETER SIZE

UTI SIGNS AND SYMPTOMS

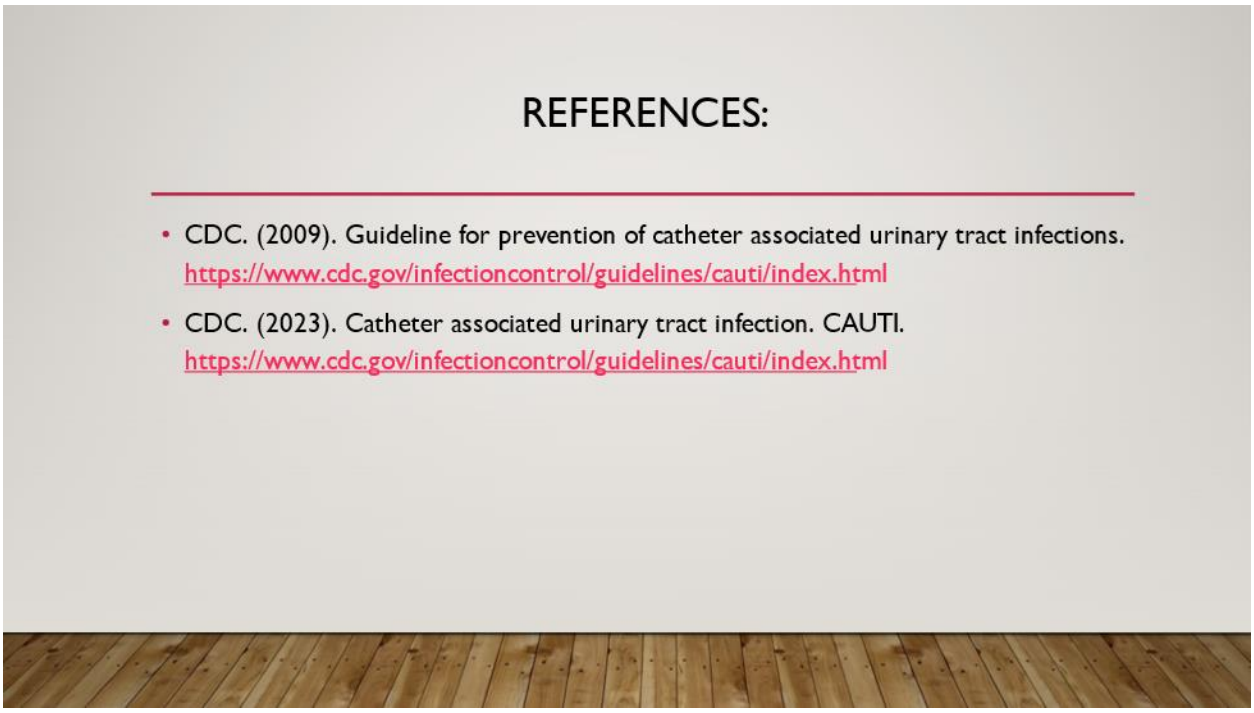
- FEVER
- CHANGE IN MENTAL STATUS
- BLADDER PAIN
- URINARY FREQUENCY
- BURING UPON URINATION
- BLADDER SPASMS

ACUTE SETTING VS. CHRONIC SETTING

- IN AN ACUTE SITUATION, DO NOT LEAVE URINARY CATHETERS IN FOR MORE THAT 24 HOURS.
- ANYTHING MORE THAN 30 HOURS OF INSERTION GREATLY INCREASES CHANCES OF PATIENTS DEVELOPING UTI (CDC, 2023).
- IF CHRONIC SITUATION, MUST BE CHANGED MONTHLY OR AS ORDERED BY HCP.

THANK YOU:

- QUESTIONS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Appendix B: Pre- and Posttests

CAUTI PREVENTION

Do you have a strong knowledge of how to care for patients with foley catheters?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

Do you have the tools and resources needed to provide optimal patient care for those with foley catheters?

☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

Do you have a high level of confidence to educate patients on the importance of daily care of foley catheters?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

Do you know where to find the CDC guidelines?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

Do you know how to complete a step-by-step process regarding foley catheter insertion and maintenance?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

Do you know the importance of sterile technique?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree

Do you know where to find your policies regarding CAUTI prevention?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Strongly Disagree Strongly Agree