

Decreasing catheter associated urinary tract infections



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Decreasing Catheter Associated Urinary Tract Infections: Implementing a Two-Nurse Insertion Protocol

Abstract

Background : Catheter associated urinary tract infections (CAUTIs) are a preventable complication afflicting many patients within the healthcare system. Adhering to evidence-based recommendations of sterile urinary catheter insertion practices can minimize the risk of CAUTIs.

Significance : CAUTIs cause unnecessary patient harm and significant financial losses for healthcare institutions. This research proposal has the potential to enhance the culture of safety and accountability in nursing practice through the creation of a new gold standard of care.

Purpose : The purpose of this study is to investigate innovative methods to promote adherence to evidence-based guidelines that suggest sterile technique for insertion. The research question under investigation is: In hospitalized patients that require a urinary catheter, what effect does the implementation of two-nurse urinary catheter insertion protocol, in comparison to the standard one-nurse insertion protocol, have on decreased catheter-associated urinary tract infections.

Theoretical Framework : The American Association of Critical Care Nurse's synergy model for patient care suggests that patient outcomes are influenced by nursing practices and will serve as the conceptual guide for this research project.

Keywords: catheter-associated urinary tract infection; sterile; evidence-based protocols; two-nurse insertion protocol

Decreasing Catheter Associated Urinary Tract Infections: Implementing a Two-Nurse Insertion Protocol

Catheter associated urinary tract infections (CAUTIs) are responsible for nearly half of all healthcare acquired infections (HAIs) in the United States (Centers for Disease and Prevention (CDC), 2017). The consequences of CAUTIs are numerous and include increased patient mortality and morbidity and significant financial losses for healthcare institutions (Galiczewski & Shurpin, 2017). Fortunately, the risk of CAUTIs can be greatly reduced through healthcare personnel adhering to evidence-based guidelines to ensure proper sterile insertion and maintenance of indwelling urinary catheters. Despite the publication of numerous guidelines, reducing the number of CAUTIs remains a global patient safety priority (WHO, 2018). Innovative solutions must be proposed and researched in order to continue to improve current CAUTI prevention guidelines. This research proposal will identify one such innovative strategy, using a two-nurse urinary catheter insertion protocol, and the positive impacts it could have on multiple stakeholders within the healthcare institution.

Background

According to the CDC (2017) an estimated 25 percent of hospitalized patients have a urinary catheter placed during their admission and, of these patients, nearly 75 percent will develop a CAUTI (CDC, 2017). A CAUTI is the result of bacteria entering the urethra during urinary catheter insertion and <https://assignbuster.com/decreasing-catheter-associated-urinary-tract-infections/>

subsequently causing a urinary tract infection (Carter, Reitmeier, and Goodloe, 2014). Fortunately, there are ways to minimize the risk of CAUTI development.

According to Umschmeid et al. (2011) nearly 70 percent of CAUTIs could be prevented by adhering to specific evidence-based guidelines that identify the sterile insertion of urinary catheters as an essential practice to reduce infections. Similarly, the Centers of Medicare and Medicaid Services have identified CAUTIs as a preventable complication of hospitalizations and, as of 2008, hospitals are no longer being reimbursed for expenses associated with CAUTIs (American Association of Critical Care Nurses (AACN), 2016). More recently, Healthy People 2020 objectives identified the reduction of HAIs as a top priority to ensure patient safety and prevent unnecessary patient harm (Office of Disease Prevention and Health Promotion (ODPHP), 2019). Many healthcare institutions have responded to this increased pressure from governmental and professional organizations to decrease CAUTI rates by implementing evidence-based protocols related to urinary catheter insertion, maintenance, and removal (Galiczewski & Shurpin, 2017). Despite the implementation of practice guidelines, CAUTIs remain a major preventable complication within our healthcare system.

Significance

As previously suggested, there are multiple stakeholders within the healthcare systems that could benefit from ongoing research to uncover additional CAUTI prevention methods and improve the current recommendations. According to the CDC (2017) over half a million CAUTIs

occur annually and subsequently lead to an estimated 13, 000 deaths. Shockingly, the CDC (2017) suggests that 380, 000 CAUTIs and 9, 000 CAUTI related deaths are preventable with proper adherence to evidence-based guidelines. This research project has the potential to positively impact hundreds of thousands of patients' qualities of life by uncovering additional methods that reduce their risk for developing a CAUTI.

Although insertion of urinary catheters is a common practice, the insertion itself involves a complex multistep process. The Agency for Healthcare Quality and Research (AHQR) (2015) states that nursing staff are primarily responsible for the insertion of urinary catheters. Given this information, front-line nursing staff play a vital role in recognizing areas where improvements are needed and hold key positions to develop and carry out new healthcare policies aimed at enhancing the culture of safety and accountability in practice. Further support for nurses to transform current healthcare practices comes from the Institute of Medicine (2010) that calls for nurses to act as leaders in changing and advancing current healthcare practices in order to maximize patient outcomes and increase patient safety. The findings of this research proposal have the potential to identify a new standard of care for the insertion of urinary catheters that could be adopted both nationally and internationally.

Research Purpose

This research proposal addresses the high incidence of CAUTIs among hospitalized patients that are in part, related to the nonadherence of sterile insertion techniques (Carter, Reitmeier, & Goodloe, 2014). The purpose of

this study is to investigate innovative methods to promote adherence to evidence-based guidelines that suggest sterile technique for insertion. The research question under investigation is: In hospitalized patients that require a urinary catheter, what effect does the implementation of two-nurse urinary catheter insertion protocol, in comparison to the standard one-nurse insertion protocol, have on decreased catheter-associated urinary tract infections. For the purposes of this paper, a CAUTI is defined as a preventable bacterial complication which is attributed to breaks in sterile technique during the insertion of a urinary catheter.

Review of the Literature and Theoretical Framework

To address the current strategies implemented by healthcare institutions aimed at reducing CAUTIs, a review of relevant peer-reviewed articles was performed using Google Scholar, PubMed, CINAHL, EBSCOhost, and Medline databases and search engines. The following keywords were used alone and in combination to search for articles: catheter associated urinary tract infection, evidence-based practices, two-nurse insertion protocol, sterile insertion, and nursing interventions. The resulting articles were evaluated for relevance to practice using the evidence hierarchy identified by Melnyk and Fineout-Overholt (2019).

Gaps of Knowledge

As previously mentioned, multiple professional sources have developed evidence-based practice guidelines that provide strong recommendations for the sterile insertion of urinary catheters to reduce CAUTI rates (CDC, 2017;

AHRQ, 2015; Association for Professionals in Infection Control and <https://assignbuster.com/decreasing-catheter-associated-urinary-tract-infections/>

Epidemiology (APIC), 2014). Despite these recommendations, according to one study published by the AHRQ (2015), only 70 percent of surveyed nurses reported always maintaining sterility when inserting urinary catheters. Similarly, Manojlovich et al. (2015) found that nursing staff broke sterile technique nearly 60 percent of the time while inserting urinary catheters. While further research needs to be completed to uncover what factors contribute to breaks in sterile techniques, there is at least one plausible cause, insufficient knowledge.

Nursing students are routinely taught how to maintain sterile technique when inserting urinary catheters as part of their pre-licensure education. Once these students become licensed and are practicing, most institutions do not periodically review this competency (AHRQ, 2015). Similarly, there is a lack of data to ensure this competency has been met upon hire. Herein lies an area where additional research could potentially generate new knowledge and uncover innovative solutions targeted to ensure sterile technique competencies among practicing healthcare personnel.

Consequences of the Problem

The impacts of CAUTIs have been well documented over the past decade and are widespread effecting both patients and healthcare institutions alike. According to Galiczewski and Shurpin (2017) CAUTIs lead to increased patient morbidity and mortality, increased length of hospital stays, and increased use of unnecessary antibiotics. As part of a of a global initiative to reduce antibiotic resistance, adherence to infection control and prevention efforts is essential to decrease CAUTIs and subsequent antibiotic usage

(WHO, 2018). If the current guidelines to reduce CAUTIs are not revamped, a significant number of patients will continue to suffer from unnecessary and preventable harm.

Every year, healthcare institutions suffer significant financial losses due to the lack of reimbursement for cost of additional care related to CAUTIs.

Rhone et al. (2017) cited that each individual CAUTI costs healthcare facilities roughly 1, 000 dollars. In total, CAUTIs cost American healthcare institutions more than 340 million dollars annually (Rhone et al., 2017).

Without addressing methods to increase adherence to evidence-base guidelines, healthcare institutions will continue to lose income during a time when they are already facing increased financial pressures.

Proposed Solutions

One solution investigated by Gerolemou et al. (2014) to increase nursing staff's competencies of sterile technique to reduce catheter-related blood stream infections (CRBSI) was using simulation-based training. Gerolemou et al. (2014) applied this theory to practice by assessing 46 critical care nurses baseline competencies of sterile technique through observing them prepare a sterile field for central venous catheter placement (CVC) and providing them feedback. After a feedback and education session, these same nurses were reevaluated performing the same process. The results reported indicated simulation-based training increased nurses' competencies, and the overall CRBSI rates seen within their respective unit were reduced by 85 percent (Gerolemou et al., 2014). Although the focus of this study was on sterile field preparation for CVC placement, the results

suggest that simulation-based training could potentially increase nursing competencies of sterile technique of urinary catheter insertion. However, the small sample size of this study limits the ability to generalize these findings to other areas of practice.

A more recent solution that has been proposed by the AACN (2015) to increase adherence to sterile insertion techniques includes implementing a two-nurse insertion protocol as the new gold standard of practice.

Traditionally, urinary catheter insertion practices require the presence of one trained nursing personnel. Implementing a two-nurse insertion protocol allows for an additional set of hands to help with patient positioning and an extra set of eyes to observe for breaks in sterile technique. Furthermore, the AHRQ (2015) suggests the presence of two nurses at the bedside during insertion provides an ideal opportunity to promote ongoing teaching and learning through an empowering peer review process.

To date, the literature review found a limited number of studies that investigated the idea of using a two-nurse catheter insertion practice to increase adherence to sterile technique. Four studies cited favorable results in reducing CAUTI rates after implementing a two-nurse insertion protocol (Belizario, 2015; Carter, Reitmeier, & Goodloe, 2014; Galiczewski & Shurpin, 2016; Rhone et al., 2017). Of these studies, only two focused on strictly implementing a two-nurse protocol (Belizario, 2015; Galiczewski & Shurpin, 2017). Carter, Reitmeier, and Goodloe (2014) and Rhone et al. (2017) also implemented protocols to ensure there was a clinical indication necessitating the insertion of a urinary catheter. The clinical indications included things such as acute urinary obstruction and comfort or end of life care (Rhone et al. <https://assignbuster.com/decreasing-catheter-associated-urinary-tract-infections/>

al., 2017). Important to note is that only Galiczewski and Shurpin (2017) provided additional education to ensure nursing staff that were identified as the second nurse within this protocol were competent on sterile technique. This would be an essential step to take when implementing a similar study to ensure proper techniques are being reiterated among nursing personnel.

Theoretical Framework

The American Association of Critical Care Nurses (AACN) synergy model for patient care was developed in 1996 to serve as the basis for nursing certification programs (AACN, 2019). This model helped to establish the important link that nursing practices impact patient outcomes. Given that CAUTIs are mostly a result of nursing personnel's non-adherence to sterile insertion practices (Peter, Devi, & Nyack, 2018), this model can serve as the framework to improve current nursing practices to ensure better patient outcomes. Applying this model to the current research proposal would translate into ensuring a competent nursing workforce and the promotion of adherence to sterile catheter insertion protocols to reduce CAUTI rates.

The synergy model identifies eight specific patient characteristics or needs that provide the basis for the eight specific nursing competencies identified within the model (AACN, 2019). Clinical inquiry is the nursing competency that most closely aligns with this research proposal and is an essential component of nursing education supported by the Quality and Safety Education for Nurses (2019). According to Kaplow (2003) the synergy model defines clinical inquiry as the need for ongoing evaluation of current practices in order to identify areas where innovative solutions are needed to

promote the best patient outcomes. In relation to the current research proposal, the competent nurse understands there is a deficit in practice between what the guidelines propose and the number of nurses adhering to these guidelines. The proposal of a two-nurse insertion protocol is just one innovative solution that must be explored as means to increase adherence to sterile insertion practices and, thus, reduce CAUTI rates.

In summary, the synergy model suggests the goal of nursing practice is to facilitate the safe passage of patients through the healthcare system (AACN, 2019). Nurses have a duty to protect patients from being exposed to unnecessary harm, which would be equivalent to a CAUTI in this example. Through clinical inquiry, a new solution, known as the two-nurse insertion protocol, has been proposed as the new gold standard for catheter insertion practice.

Summary of Literature Review

When addressing CAUTI reduction measures, and more specifically ways to increase adherence to known evidence-based guidelines, the literature review identified sterile insertion as an essential practice recommended by various professional organizations (AACN, 2019; APIC, 2014; CDC, 2017). Unfortunately, there is a gap in compliance to these protocols, which may be attributed to lack of sterile technique competencies among healthcare personnel (AHRQ, 2015; Manojlovich et al., 2015). Without addressing this competency, patients and healthcare institutions will continue to suffer increased morbidity and financial loss respectively. Simulation training and implementing a two-nurse insertion protocol have been proposed as possible

solutions to increase competencies. The review of literature lent some support to the proposal of implementing a two-nurse insertion protocol as a method to reduce CAUTI rates, however, there were a limited number of studies to back this claim.

Conclusion

Following best practice guidelines that recommend the sterile insertion technique can drastically reduce CAUTI rates and prevent unnecessary patient harm (CDC, 2017). To increase staffs' adherence to these guidelines, routine education, surveillance, and peer feedback using a two-nurse insertion protocol has been proposed as the new gold standard for nursing practice. Unfortunately, there are a limited number of studies available to support this claim and further research would provide additional data to substantiate these claims.

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