Hospital Acquired Urinary Tract Infections: Quality Improvement

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Catheter Acquired Urinary Tract Infections: Quality Improvement

The technique of sterile catheter insertion is a fundamental skill taught to all nurses. A sterile technique is required for catheter insertion to prevent urinary tract infection. Nursing professors go to great lengths to emphasize the importance of this technique, teaching the skills necessary to do it correctly. Using improper techniques could lead to urinary tract infections resulting in increased health care costs, more extended hospital stays, patient discomfort, and even death. Catheter-acquired urinary tract infections known as CAUTIs are often preventable. One article estimated that the average yearly cost to the American health care system is somewhere between 340 million and 1.7 billion (Study, 2018). The healthcare system has gone to great lengths to reduce the number of CAUTIs. To incentivize hospitals to reduce CAUTI rates, insurance companies no longer reimburse hospitals for costs associated with these infections.

Quality improvement is a system used by healthcare professionals to improve best nursing practice and patient outcomes continually. Nurses aim to understand the best available evidence to inform their decision-making as they care for patients (Houser, 2018). The QSEN competencies highlight three areas regarding quality improvement that are vital for nurses approaching quality improvement efforts. These areas are knowledge, skills, and attitudes (QSEN Institute, 2020). Nurses must understand the foundational knowledge regarding the reason improvement is necessary for a given area. Nurses must be well trained in the necessary skills required to implement the improvement project. Nurse attitude regarding the quality improvement effort is paramount because nurse buy-in is necessary to sustain change. Most hospitals have room to make improvements in the rate of CAUTIs in their facilities. Quality improvement projects in this area can explore what educational teaching, skills practice, and

employee attitude shifts are necessary to improve patient outcomes and associated costs of CAUTIs. Working together, nurses can prevent illness and death in patients. Saving lives should matter greatly to all nurses.

Article Summary

Introduction

In a recent study, researchers sought to understand the relationship between complicated urinary tract infections (cUTI), ineffective empiric therapy, and the outcomes of the patients. The study retroactively looked at 23,331 patients who had cUTIs. Patients were included in the study if their urinary tract infection was resistant to more than three of the following medications: third-generation cephalosporins, fluoroquinolones, trimethoprim-sulfamethoxazole, fosfomycin, and nitrofurantoin (Zilberberg, 2021). The study tracked the empiric therapies offered to the patients and whether they were effective or ineffective. The study also examined the outcomes of these patients, including their acuity and rate of mortality. This article relates to the quality improvement project about CAUTIs because many complicated urinary tract infections begin due to a preventable infection caused by poor catheter insertion techniques.

Overview

The research article indicates that cUTIs are one of the leading causes of infection-related acute hospitalizations (Zilberberg, 2021). Urinary tract infections acquired in the hospital are unfortunately common. Finding sustainable protocol to ensure nurses understand the risks of CAUTIs (education), know the correct technique for catheter insertion (skills), and have the necessary incentives to perform them correctly every time (attitudes) could drastically reduce the prevalence of this type of infection. Hospital protocol often requires that two nurses are present

during catheter insertion. Two-person insertion usually means one nurse is performing the procedure and the other is assisting and ensuring the nurse uses the correct technique. When nurses insert catheters improperly, both nurses usually understand the risk. Nursing schools emphasize this teaching so much that it is hard to believe a nurse could graduate without understanding that improper catheter insertion introduces bacteria to the bladder and can easily cause a severe infection. Nursing students also have to practice and perform catheter insertion correctly in order to pass skill requirements. Therefore, much of this problem lies in a hospital's attitudes, traditions, and nurse culture. With a suitable protocol in place, nurse attitudes can change! Introducing a three-person check-off system could drastically change the prevalence of CAUTIs. Two nurses would be required to give the patient a check-off sheet that explains the proper technique for catheter insertion, explain it to them, and then all three individuals would be required to sign it before beginning the procedure. The check-off sheet would cover things like proper perineal cleaning before the procedure, wearing sterile gloves, and attempting to insert a foley only one time. The check-off sheet would specify the importance of using a new catheter kit if the attempt was unsuccessful. These simple measures could change patients' outcomes, reducing the length of their hospital stay, cutting health care costs, and making them more comfortable.

Quality Improvement

The research article studied patients in the hospital setting. Nurses can implement this quality improvement project in the hospital setting where patients need catheterization for various reasons. In the pre-implementation stage, a class explaining the new three-person checklist would be most beneficial. A class could ensure the nursing staff understands the education necessary to implement this change, the expected catheter insertion technique, and the

culture shift, including educating the patient and making them part of the accountability process. During this stage, leaders should share data about the existing levels of CAUTIs with the nursing staff. In the intra-implementation stage, it would be helpful to present statistical information regarding the fall in CAUTIs to encourage the staff to keep working hard. A leader should also be appointed so the nurses have a person to discuss the new protocol's potential problems or limitations. This person can also collect quantitative data about the nurses' experience regarding this new protocol. In the post-implementation stage, leaders should share the data with the nursing staff. Yearly reports showing CAUTI rates and nurse experience information should be shared with the staff to help promote sustainability.

Making these changes will save many patients from acquiring CAUTIs, which could become cUTIs. One in eight patients who were diagnosed with a cUTI developed triple resistance (Zilberberg, 2021). Reducing the number of CAUTIs will reduce the number of cUTIs, which will reduce the cost and duration of the patient's hospital stay. Insurance companies do not reimburse hospitals for the costs associated with CAUTIs. Therefore, if these measures reduce the number of CAUTIs, the hospital will keep more profit. The hospital could save on average $867 to $10,197 for every avoided CAUTI, depending on what level of care the patient requires (Hollenbeak, 2018). To promote nurse participation and compliance with this project, the hospital could create an incentive program to benefit nursing units that prevent CAUTIs. Implementing these changes and evaluating the outcomes will likely necessitate hiring a person to take on these tasks or adding the project to an existing employee's responsibilities. A nurse with nursing experience and management experience would be best for a position like this. Patients will benefit from these measures by not acquiring an infection that causes abdominal, flank pain, pelvic pain, frequent urination, and painful urination. The patient satisfaction will be

higher, and the patients will be safer from serious complications resulting from CAUTIs like sepsis and death. Nurse satisfaction will improve as well due to increased teamwork and confidence. All nurses want to help patients achieve optimal health. Working to prevent preventable illness is worthy of a nurse's effort.

Application to Nursing

Performing catheter insertion the right way every time is necessary for improving patient outcomes. The hospital nursing staff and administration can change catheter insertion practice and education to facilitate these changes. Further studying ways to improve nursing compliance with these changes will improve these efforts.

Practice

When nurses use sterile techniques while inserting a catheter, the patient's likelihood of acquiring a urinary tract infection decreases. All nursing students learn sterile techniques, but often there is a gap between protocol and practice. For example, nurses often discard the fenestrated drape before use. Following established catheter insertion protocol without modification has been shown to significantly reduce CAUTI incidents (Rhone et al., 2017). Many protocols specify the use of sterile technique but do not specify what to do if catheter insertion is unsuccessful on the first attempt. Tampa General Hospital produced a protocol that specifies that nurses may not reinsert a catheter if the first attempt is unsuccessful (Rhone et al., 2017). Instead, nurses are to use a new catheter kit and start over. The previously referenced protocol also requires two nurses to sign off on the protocol checklist as a means of accountability (Rhone et al., 2017).

Education

Health care facilities expect nursing staff to follow protocols (Vazquez-Calatayud, 2020). Often, the protocols include guidelines for cleansing the patient's perineal area, using the catheter kit supplies, sterile gloving, using a clean hand and a dirty hand, and how far to insert the catheter. (Rhone et al., 2017). Many protocols also include guidelines for securing the catheter tubing and instructions for how to hang the bag. Many facility guidelines do not include instructions for what to do if the insertion attempt is unsuccessful. Educating staff in proper catheter insertion techniques is of utmost importance before implementing the new quality improvement plan. Education for the staff should include a teaching session explaining the new protocol with rationales, the prevalence of CAUTIs in their specific facility, and a thorough explanation of the facility expectations going forward (Rhone et al., 2017). The nurse leaders teaching the education sessions should understand the most recent guidelines for CAUTI prevention (Centers for Disease Control and Prevention, 2015). The most up-to-date guidelines from the Centers for Disease Control and Prevention (CDC) were last updated in 2015. These guidelines are six years old, which is concerning. Hopefully, the CDC will release more updated guidelines relatively soon. Incorporating the most up-to-date guidelines will ensure the health care institution is following best practices.

Additionally, explaining the accountability aspects of the protocol will be vital as they will include educating the patient, having the patient sign the checklist if able, and both nurses signing the checklist. Providing instruction on facility expectations for when a staff member breaks this protocol is also necessary.

Research

There are many areas where further research would enhance best practices and the reduction in CAUTI incidences. This section will focus on recommendations that are pertinent to

the hospital setting. Researching alternatives for catheterization should be of high priority. Possible alternatives could include using a urethral stent instead of a catheter for patients with urethral obstructions (Centers for Disease Control and Prevention, 2015). Another possible alternative is using supra-pubic catheters instead of the usual foley catheter (Centers for Disease Control and Prevention, 2015). Researching alternatives to traditional catheterization could lead to a reduction in the prevalence of catheterization. Another research focus should be on the use of antimicrobial-impregnated catheters and the outcomes associated with them. Researching the effects of reinserting a foley catheter when the first attempt is unsuccessful would also be of great value. Researching ways to reduce the number of catheterizations and ways to prevent infection will lead to improved outcomes in the future.

Conclusion

The QSEN competencies highlight three crucial areas to focus on for quality improvement efforts. These areas are knowledge, skills, and attitudes (QSEN Institute, 2020). When nurses understand the foundational knowledge of a given problem, are well trained in the necessary skills to address the problem, and have buy-in in the quality improvement effort, lasting changes occur. CAUTIs make up an estimated 449,334 healthcare-associated infections each year (Rhone, 2017). These infections are largely preventable and cause harm to patients and financial strain on the health care system. Insurance companies have tried to incentivize the reduction in CAUTIs, but it is clear that a vast problem remains. There is a gap between protocol and practice that nurses must address. Humans are creatures of habit. Intervention is necessary if a hospital's nursing staff has acquired a habit of cutting corners and disregarding protocol. Implementing a quality improvement plan similar to the one outlined in this paper could cause a culture change. This quality improvement plan centers around the three-person checklist as a

means of accountability. With nurse accountability, thorough education, and open minds, a reduction in the rate of CAUTIs is possible. Reducing CAUTIs will prevent CUTIs, prevent unnecessary patient death and discomfort, save the health care system millions of dollars, and promote better nurse-patient trust. All nurses should see the significance of this problem and do what they can to make the necessary changes.

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