**Catheter-Associated Urinary Tract Infection Reduction**

Reducing Catheter Urinary Tract Infection (CAUTI) In Long-Term Acute Care Hospitals

The use of the catheters increases the risk of patients developing catheter-associated urinary tract infection. In this manner, healthcare organizations are determined to ensure the safety of the patients while receiving care and the quality of care that is provided to the patients enable hospitals to attain the quality of outcomes that are desired. The occurrences, therefore, call for the reduction in the rates of the hospital-acquired CAUTIs (Gordon, 2015). The purpose of the current work is to present a story of inquiry process into the development of the DNP project thereby demonstrating the understanding of how the theoretical and also process models guide the DNP project development. The paper proceeds through the discussion of the project topic and question formats followed by a reflection on nursing science underpinnings for practice change. The succeeding section entails the part of development and discussion that is followed by a conclusion of the work.

**Project topic and question formats**

Hospital-acquired infections are among the most challenging problems that are encountered by most healthcare organizations. The most commonly encountered hospital-acquired infection is determined as urinary tract infection that is prevalent at approximately 1-10%. The determination is said to represent about thirty to forty percent of the nosocomial infections.  Mortality associated with the UTIs occurs at a rate of 10 percent, and this also leads to increased morbidity and cost escalations. The independent risk factor and the most significant one in the development of UTI is urinary catheterization. The areas of attachment of microbial adhesion are provided by the indwelling catheters that also predisposes the patient to symptomatic infection. The symptomatic infections lead to the contamination of the ureter and further leading to the infection of the bladder and the kidney of the affected patient. Therefore, a considerable reservoir of resistant pathogens that also lead to cross-infection of the patients is catheter urinary tract infection (Gordon, 2015).

CAUTIs accounts for up to 67% of UTIs among all hospitals inpatients and 97 percent of UTIs among the patients that are admitted to intensive care units. Approximately 380,600 additional public hospital bed days in Australia are used every year due to hospital-acquired CAUTIs. Every incidence of CAUTI is quantified to cost between $1200 to USD 4700. The significance of having the problem and etiology statement is to understand the damages incurred following the development of CAUTI and also understanding the path of transmission thereby informing on the need to initiate change. Therefore, this led to the formulation of the PICOT question as: Among the elderly long-term acute care patients (P), does the implementation of urinary catheter protocol (I) compared to no protocol (C) on the day of admission reduces the occurrence of catheter-associated urinary tract infection three months (T) post-admission. The PICOT question is essential since it allows for the determination of the group that the project will focus on to allow for the assessment of the effectiveness of the changes within three months of implementation (Verma, Naik, & Deepak, 2017).

**Reflection on Nursing Science Underpinnings for Practice Change**

Catheter-associated urinary tract infection is a challenge that all healthcare organizations are exposed to, and the effective management or elimination of the problem not only require designing procedures to be followed but also understanding it in the context of nursing metaparadigms. The four nursing metaparadigms that are important in the development of knowledge regarding the prevention of CAUTI include the person, health, environment, and nursing. On the other hand, changes in practice in hospitals are achieved through following a predetermined route and such are attainable through the use of the nursing theories. The guidance offered for change through the Theory of Ways of Knowing is appropriate for directing the current DNP project.

**Metaparadigm**

The metapradigm, person, indicates that an individual that is receiving care is unique regarding their set values, ideologies and beliefs and also have a cultural identity that coincides with the system values of others. Catheter insertion and management require patient preferences and collaboration that at times require the nurse to collect data by asking the patient questions and monitoring the conditions. The patient's willingness to cooperate with the nurse is dependent on the rapport that the patient and the nurse creates and this only achievable when the nurses accord the patients respect and dignity irrespective of personal differences. According to the metaprardigm of health, an individual can only attain optimal health when treated as a whole and through a holistic approach. Routine evaluations play significant roles as per the metaparadigm of health, and this aligns with the management of indwelling catheters to prevent the development of CAUTI (Branch et al., 2016).

According to the metaparadigm of nursing, nurses are required to understand both the science and physiology behind the disease as well as genuinely caring for the wellbeing of others. Nurses must, therefore, work closely with the patients having indwelling catheters and at best manage the insertions to ensure that infections occur that could lead to CAUTI. Concerning the metaparadigm of the environment, the nurse must create a therapeutic surrounding to promote the patient’s healing. Therefore, necessary changes must be made based on the patient’s needs in the time catheters are inserted to aid in voiding to ensure conditions are effectively managed to eliminate the chances of infections that lead to CAUTI (Branch et al., 2016).

**Ways of Knowing**

The first way of knowing as proposed by the theorist is empirics. Empirical knowledge draws from the traditional ideas of science where reality is verifiable by the observers, and that reliable and valid knowledge is objective, generalizable, descriptive, and factual. Therefore, concerning the reduction of CAUTI, nurses must attain appropriate evidence-based practices and expertise that will allow best performances and management of patients with indwelling catheters to eliminate chances of infections leading to CAUTI. Ethics of knowing as another concept focuses on obligation and the things ought to be done together with exploring the ethical codes of engagement or norms and also influences the nurses to ask the questions of what is right and just. In the context of CAUTI prevention, nurses must endeavor to implement the correct procedures in the management of catheter insertions and such involvements will aid in the reductions of the cases of CAUTIs. The third concept is personal knowing and contributes to an understanding through reflection and response. According to the idea, the nurses must strive to attain authentic personal relationships with the patients and also do what they know best through learned knowledge. The knowledge on the EBPs influences the nurses to implement the best they know in managing patients with indwelling catheters thereby leading to the best outcome on no development of infections causing CAUTI (Carper, 1999).

On the other hand, esthetics knowing entails making visible through actions the perceptions of nurses of the needs of their patients. Empathy and experience are significant aspects of esthetic knowing. Through empathizing with the patients in their conditions and implementing the right procedures over time, the nurses are endowed with the skills of best actions in the management of the patients having catheter insertions, thus, leading to reduced infections and CAUTIs. Social-political knowing is a way of knowing encompassing the social-political environment of an individual and their interaction. The nurses must confront the social structures of the society on a daily basis in their interactions with patients. Therefore, the policy of engagement and decision making while handling patient with indwelling catheters must focus on the prevalence and the burden of such infections thereby influencing the adoption of procedures that reduce the rates of occurrences (Carper, 1999).

**Nursing Theorist**

Empirics of knowing as the first assumption of the theorist are argued to be the science of understanding and that the knowledge attained is descriptive, factual and aids in the creation of abstract theoretical explanations (Carper, 1999). The theorist assumption is in line with metaparadigm of nursing that requires the nurses to have an understanding of science and physiology of the disease or condition managed. With verifiable knowledge through knowing, the nurses are capable of reducing the rates at which CAUTIs are occurring in the hospitals. Ethics as a way of understanding and through it, the nurses are obligated to know what ought to be done. The assumption is correlated with the metaparadigm of health that also states that complete healing is achievable through focusing on the patient as a whole and this requires putting into considerations the norms and codes of practice (Branch et al., 2016).

Personal knowing as an assumption of the theory states that nurses’ understandings are made possible when they approach the patients not as objects or diagnosis but when focused on developing authentic relationships. The assumption links with the metaparadigm of person that requires that nurses approach the patients with respect and dignity with the aim to create personal relationships for effective management of the patient’s condition. Esthetics of knowing focuses on nurses’ practices that are made visible through their actions based on their perceptions of the patients’ conditions. Additionally, the assumption of social-political knowing encompasses the understanding of the social-political environment and factors interacting with the surroundings where care is offered to impact on the outcome (Carper, 1999). The two assumptions, esthetics and social-political knowing, links with the metaparadigm of environments where nurses have to make necessary modifications through actions and factors present in the area of care provided to address the patients’ needs. The identified means of engagements and links enable nurses to appropriately manage cases of indwelling catheters thereby minimizing the rates or eliminating the occurrences of CAUTIs (Branch et al., 2016).

**Development and Discussion**

Catheter-associated urinary tract infection is a preventable hospital-acquired infection yet occurrence and costs are on the rise year in year out. Being that the condition is preventable, hospitals can operate and a zero incident of CAUTIs or if it must be experienced the rates should be to lowest percentages possible. The effective management of indwelling catheters is influenced from the moment the condition of the patient is assessed to determine whether it is fit to insert a catheter to aid in voiding. Lack of following the right procedures during the placement of the catheters when its use is validated is the beginning of the problems leave alone the inadequate assessment and management of the patient during the time they have indwelling catheters. Therefore, it means that the nurses require evidence-based practices to offer them the knowledge necessary for guiding their engagement with patients having indwelling catheters to reduce or eliminate the chances of occurrence of CAUTI.

**Supporting Literature**

The article for consideration in this part is by Parker et al. titled “Avoiding inappropriate urinary catheter use and catheter-associated urinary tract infection (CAUTI): a pre-post control intervention study.” The primary aim of the study team was to reduce indwelling urinary catheter usage rate, and this was by avoiding unnecessary catheterization and also the duration of catheterization. The researchers pointed out that there are not studies in Australia that are focused on the reduction in the use of the indwelling urinary catheters or the decrease of CAUTI. Parker et al. argued that improved outcome is achievable through clinical practice as well as practice change implementation and robust evaluation. Accordingly, the researchers have identified that the problem of CAUTI is primarily linked to healthcare professionals’ practices and this supports my idea that nurses’ practices must be changed and informed through evidence-based interventions. The arguments in the article further advance my understanding by stating that a systematic approach to the implementation of EBPs through nurse-led initiatives provides the means to appropriately manage involvement with patients to eliminate the occurrences of CAUTIs. The next step, therefore, is to appraise research studies on EBPs for effective management of the condition to design evidence-based interventions for CAUTI (Parker et al., 2017).

**Conclusion**

In conclusion, CAUTI is a significant hospital-acquired infection that affects all healthcare organizations. However, it is determined that CAUTIs are preventable conditions following appropriate management of the patients following catheterization. Additionally, effective control of CAUTI and formulation of practice change requires its understanding through the four metaparadigm of nursing as well as the five concepts of the theory of Ways of knowing. Lastly, clinical practice and practice change evaluation and the implementation of evidence-based interventions allow for substantial reductions in the rates of CAUTIs in acute care hospitals.

**References**

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