**Foley Catheters Associated Infections; Medication Errors and Insecurity of Electronic Patients’ Medical Record**

**Introduction**

In the recent past, the issue of patient safety has been of great concern. Nurses play essential role in improving safety and quality of patients’ care. Nurses need to be aware about established concepts and mechanisms that are used in order to improve patients’ outcomes. Many practices that promote patients’ safety are considered to prevent errors and to enhance health care process. Bed side nursing used to be based more on tradition rather than evidence. But nowadays nurses that are lucky enough to practice, encouraged to further their education so that they can apply their knowledge at bedside practice, educate patients and families, and of course share their expertise with co-workers. If knowledge acquired through research would become part of the system then patient care would be better maintained with better outcomes (Titler, 2012, p.1).

 In-patients admitted to hospitals need foley catheter insertion. The insertion of the foley catheter is a very crucial skill in the medical profession. According to (Lo, Lange, & Chew, 2014), a foley catheter is a thin, sterile tube that is inserted into the bladder with an aim of draining urine. Considering that it may be left in the bladder for quite an extended period, it can also be known as the indwelling catheter. Titler (2008) adds that the device is held in place with a balloon on one end that is filled with water that is sterilised in order to prevent the catheter from being pushed out of the bladder. On its working mechanism, the device works by urine draining via the catheter directed into a bag. The bag is usually emptied when it is full. Catherization is the process of inserting the catheter.

 There are various risks associated with catherization including development of infections. However, Barry and Wenthold (2016)added that the process may also lead to the balloon breaking while the catheter is being inserted, the balloon fails to inflate after it is put in place, urine stopping to flow into the bag, blocking of the flow of urine, bleeding of the urethra, occurrence of bladder spasms, a sudden intense urge to urinate and may be painful, and the foley catheter may introduce infections into the bladder. The risk of urine infection increases with the number of days the catheter is in place. One such infection is the catheter-associated urinary tract infections.

 Urinary tract infections, which is attributed to the utilization of the urinary catheter is regarded as one of the most common infections acquired by patients in medical care facilities. The CUATI is the source of about 20% of episodes of medical-care acquired infections in medical care facilities (Nicolle, 2014). Therefore, the paper will highlight foley catheters associated infections and make recommendations for the change in practice.

**Recommended Change in Practice**

According to a report by the National Healthcare Safety Network (NHSN), among the urinary tract infections, about 75% are related to urinary catheter. Between 15 and 30% of the hospitalized patients receive urinary catheter during their stay in the hospital. The most crucial risk factor for one developing CAUTI is extended utilization of the urinary catheter (Centers for Disease Control and Prevention, 2017). In 2014, a surveillance report by the NHSN found that between 50% and 80% of the adult in patients in acute care units required an indwelling catheter. Nonetheless, the issue of CUAT infections due to foley catheter insertion is of great concern to the nursing profession. Since there are numerous skills associated with catherizations to prevent CUAT, various changes in nursing practice have been recommended.

**Program implementation**

The infection prevention and control program is supposed to incorporate measures to limit CAUTI. The program ought to be individualized so as it is relevant to the local experience, resources, and characteristics of the local population. The most crucial aspect of any program is leadership at the senior management level. Also, there should be infrastructure to support an effective program comprises of coming up with policies for catheter indications, selection, insertion, and maintenance. A means for documenting of urinary catheter utilization such as indications and dates of insertions and removal is supposed to be established (Lo et al., 2014). In instances where electronic patient record is used, the documentation of catheter utilization as well as automatic reminders for removal must be incorporated into the record (Titsworth et al., 2012). This intervention will make use of both print and electronic media to pass the information and it will be done by registered nurses in conjunction with the hospital administration.

**Avoiding the use of the catheter**

The most crucial intervention recommended in the prevention of the CAUTI is avoidance of the foley catheter use. The health consumers affected mostly are the patients suffering the foley catheter-related infections and physicians. This intervention would be implemented by both the patient and all medical staff that will be involved in the process. The accepted indicators for catheter use to prevent infections include the monitoring the output of urine every hour in acutely ill patients, carrying out urologic surgery, perioperative utilization of selected surgical procedures, and skin grafts in selected patients with urinary infections (Meddings, 2013). The information will be passed from to the recipients through awareness campaigns on the catheter urinary infections. The use of intermittent catherization may be used when possible. Institutional policies are recommended to reduce perioperative catheter utilization by encouraging early post-procedure catheter removal and monitoring of bladder volume using ultrasound bladder scanners. This is aimed at limiting catheter reinsertion for potential urinary retention. In addition, the patients suffering from CAUTI ought to be identified and evaluated continually by the nurses at specific intervals, most preferably on a daily basis.

**Proper selection of the foley catheter device**

As for the in patients who are admitted to hospitals and require foley catheter insertion, (Willette & Coffield, 2012) notes that the daily risk of developing a CAUTI ranges between 4% to 8%. It means that the foley catheters need to be selected  properly before they are used. The study recommends that proper usage of the device will assist in alleviating the foley catheter-associated infections. This intervention will occur at medical facility and the medical staff will be tasked with selecting the right catheter device. This recommendation mostly affects the medical staff as they are the ones with knowledge in foley catheter-associated urinary infections.

**Incorporating training on CAUTI in nursing orientation**

It is also recommended that nurses are oriented in the hospital environment on the manner in which to carry out the foley catheter insertion procedure. According to(Nicolle, 2014), the catheter-related urinary tract infection is considered as the most common infection that a person may contract while in the hospital environment. The suggested change in practice is that the registered nurses need to finish their education and competency through classroom based hospital nursing orientation. In this perspective, indwelling urinary catheter is among the most common infections acquired by patients in health care facilities. However, the nurses’ professional training plays a major role in the infections. In this regard, Barry and Wenthold (2016) explored if increasing awareness through nursing orientation may result in reduction of catheter associated urinary tract infections among the newly hired nurses. The researchers aimed to produce a description of how utilizing hospital orientation may be helpful in preventing catheter associated trinary tract infections. The data was collected from 228 new registered nurses’ verified competency with urinary catheter insertion. To control bias, the researchers availed the collected notes to be critiqued by their colleagues, replaced the questions that implied a right answer with ones that put emphasis on the participants’ view-points, continuously evaluated the respondents’ impressions and challenged the pre-existing assumptions, and adopted a neutrality stand in the studied subject. The report has included specific pieces of data and more generalized statements. The major finding was that none of the infections were associated with a registered nurse completing their education and competency through classroom based hospital nursing orientation. It implies that nurses can enhance their knowledge in preventing foley associated infections through orientation in the real hospital environment.

**Electronic medical records**

The information of patients with catheter related infections needs to be safeguarded. There is need for more sophistication in managing health information, knowledge and data on the basis of public health information expertise in order to deal with the issues of policy-making, prevention and promotion. The solution to the disjointed areas in the public health domain would be the use of platform technologies which represents a highly-integrated informatics and large scale approach to the sector of public health and that combine a number of technologies including the web, internet, remote sensing, social technologies and mobile apps into a single online infrastructure that can encourage more synergies within and without the public health sector. The curricula used by health professionals need to be updated to ensure that the workforce understand platform technologies and the way they form the foundation for the sector. There is need for there for health informatics to come up with reusable design, which is a generalized design that can be reused in a number of similar context. It is possible to reuse information design if the health informatics on nursing takes an approach that integrates design method from various disciplines including Interaction Design and Human-Computer Interaction (Vest & Issel, 2013; Gray, 2016).

Foley catheter infections could lead to serious complications like trauma, sepsis and even death. Therefore, catheters are supposed to be only used for suitable indications. Proper handling and techniques when taking care of patients with foley catheters would lessen complications that are immediately associated with those catheters. One of the important universal techniques is proper hygiene, while another solution is antimicrobial coating of many different kinds catheter (Lo, Lange, & Chew, 2014). Also reduction in foley catheters infections was linked to proper insertion technique. It implies that the nurses need to improve their knowledge by furthering their education along with their nursing experience.

Other recommended practices for catheter insertion and maintenance include appropriate hand hygiene, use of sterile equipment, and replacing the system is it breaks at the asepsis, use of intermittent straight catheterization with the aid of bladder scanning, and using external catheters for male patients.

**Evaluation Strategies**

The outcomes will be measured by monitoring the foley catheter infections. A surveillance of the catheter urinary infections would be done to document the effectiveness of the interventions and allow for comparison with benchmark rates. According to Saint et al (2014), surveillance together with benchmarking was found to reduce foley related infections in German intensive care units. Core data elements are supposed to be collected in order to support effective surveillance. Beside the point, the patients will be monitored based on the “Post Foley Removal Assessment and Care” guidelines including only the physician is mandated to remove the foley. Another evaluation strategy is that the collected should be reviewed by appropriate individuals and committees, and observations reported back to caregivers on patient wards. According (Fakih, et al., 2012), reviewing the collected data resulted in a reduction in the total patient days and standardized infection ratio.

**Conclusion**

 To sum up, it was reported that in patients admitted to the hospital require foley catheter insertion. The indwelling associated urethral infections are exceedingly common in the today’s medical facilities. Therefore, prevention of infections because of these devices is a crucial goal of medical-care prevention programs. Also, nursing evaluation plays a very crucial role with regard to the need for early removal of catheters reduces catheters device associated with infections. Improved techniques for foley catheter insertion and removal are important for all health care personnel involved in the management of patients suffering from foley catheter infections. This increases the likelihood to improve the quality of care given to patients by the nurses by reducing the number of catheter-associated urinary tract infections, improving patient care and outcomes, ad reducing length of stay.

**References**

Barry, J., & Wenthold, R. (2016). Reducing Catheter Associated Urinary Tract Infections Through Foley Insertion Competency Assessment upon Hire. *American Journal of Infection Control,* 44 S28-S82. DOI: <http://dx.doi.org/10.1016/j.ajic.2016.04.068>

Centers for Disease Control and Prevention. (2017, May 5). Catheter-associated Urinary Tract Infections (CAUTI): Retrieved May 5, 2017 from https://www.cdc.gov/hai/ca\_uti/uti.html

Fakih, M. G., Greene, T., Kennedy, E. H., Meddings, J. A., Krein, S., Olmsted, R., et al. (2012). Introducing a population-based outcome measure to evaluate the effect. *American Journal of Infection Control* *, 30* (2), 1-6.

Gray K. (2016). Public health platforms: an emerging informatics approach to health professional learning and development. *Journal Of Public Health Research*.  5(1):10-13.

Lo, J., Lange, D., & Chew, H. (2014). Ureteral Stents and Foley Catheters-Associated Urinary Tract Infections: The Role of Coatings and Materials in Infection Prevention: The Role of Coatings and Materials in Infection Prevention. *Medical Biology* *, 12* (4), 87-97.

Lo E, Nicolle LE, Coffin SE, Gould C, Maragakis L, Meddings J, Pegues DA, Pettis AM, Saint S, Yokoe DS. (2014). Strategies to prevent catheter-associated urinary tract infections in acute care hospitals. Infect Control HospEpidemiol. 35(5):464–479.

Meddings, J., Rogers MA, Krein SL, Fakih MG, Olmsted RN, & Saint, S. (2013). Reducing unnecessary urinary catheter use and other strategies to prevent catheter-associated urinary tract infection: An integrative review. BMJ QualSaf. 2013. Electronically published ahead of print. doi:10.1136/bmjqs-2012-001774.

Nicolle, L. (2014). Catheter associated urinary tract infections. *Antimicrob Resist Infect Control.* *, 3* (23), 89-102.

Saint S, Olmsted RN, Fakih MG, Kowalski CP, Watson SR, Sales AE, & Krein SL. (2014). Translating health care-associated urinary tract infection prevention research into practice via the bladder bundle. *Jt Comm J Qual Patient Saf.* 35:449–455.

Titler, M. G. (2008). *Patient Safety and Quality: An Evidence-Based Handbook for Nurses.* New York: Sage Publications.

Vest, R, & Issel LM. (2013). Factors related to public health data sharing between local and state health departments. *Health Services Research*. 2013;49(1pt2):373–391. doi:10.1111/1475-6773.12138

Willette, P. A., & Coffield, a. S. (2012). Current Trends in the Management of Difficult Urinary Catheterizations. *West J Emerg Med.* *, 13* (6), 472-478.

Titsworth WL, Hester J, Correia T, Reed R, Williams M, Guin P, Layon AJ, Archibald LK, & Mocco J. (2012). Reduction of catheter-associated urinary tract infections among patients in a neurological intensive care unit: A single institution’s success. *J Neurosurg*. 116:911–920.