Catheter Associated Urinary Track Infection Prevention

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**Project Description**

For this relationship-based care project, the focus is on the prevention of catheter associated urinary tract infections. Determining the specifics for this project took some time and investigation because I am new to my place of employment and the nursing world as a whole. I am currently working in the operating room as a circulating nurse. My job duties include a pre-operative interview, intra-operative nursing care, and the delivery of the patient to the designated post-operative nursing care area. While in the intra-operative stage, patient care is entirely my responsibility. There is a surgeon, anesthesiologist, scrub tech, and orderly present, but patient care falls on the registered nurse in charge of the room. As a result, patient outcomes are the circulating nurse’s responsibility.

Throughout my orientation phase, I noticed several care techniques that experienced nurses implemented that did not follow current practice guidelines. Among the most disturbing were the techniques used during the insertion and care of Foley Catheters. The in-congruencies continued to show up on a daily basis and this became the focus of my attention. Once I recognized this and discussed it with my manager, my project became the education of operating room staff on the importance of proper Foley Catheter insertion and care.

Currently, Dixie Regional Medical Center has a point of care project on the prevention of catheter associated urinary tract infections. My research started with learning what the current issue rates were at Dixie regional and what measures were being implemented to solve the problem. During a personal interview with a leading catheter associated urinary tract infection prevention team leader at Dixie Regional Medical Center, the team leader stated, “he operating room inserts 25% of the total catheters at DRMC each year”, (Dursteler, 2014). With this overwhelming number of catheters inserted in the operating room at DRMC in mind, it is clear that we could be a major contributor to, or the solution to, the problem of catheter associated urinary tract infections.

The main focus of the catheter associated urinary tract infections prevention team was on the basic routine insertion and care of Foley Catheters. This includes thorough hand washing, thorough peri care of the patient prior to insertion, maintenance of sterile technique, and proper care of the patient and Foley Catheter after insertion.

Maintaining proper catheter insertion and care techniques is of great importance to nursing care and relationship-based care because of the risk it poses to each patient. The idea behind relationship-based care is improving safety, quality, and patient satisfaction in the care they receive. As a result, preventing catheter associated urinary tract infections is of great importance and became the sole focus of my project.

Once receiving the go ahead from my manager, I began to track common errors in catheter insertion, attitudes towards catheter insertion, and post insertion care of catheters. Common errors were as follows; pre insertion hand washing was not adhered to, peri-care was not given to patients, post peri-care hand washing or sanitization was not utilized, gloving technique was lacking, sterile drapes were not utilized, catheter bags were not kept off the floor, catheters were routinely placed above the level of the bladder, and times and dates of insertion were routinely missed. Correcting these issues was the focus of my project. I worked closely with my manager, catheter associated urinary tract infections team leader, and fellow employees to develop key concepts in improving our deficits. These concepts came down to basic pre-insertion care, sterile insertion, and proper post-insertion management.

**Literature Review**

Reviewing the literature on Foley Catheters illuminates many facts. Indwelling catheters are a major risk factor for patients in hospitals, the risk factors are not limited to discomfort and limited mobility, and can potentially pose a risk to hospital finances.

Indwelling Foley Catheters are a common occurrence in today hospitals. It has been estimated that as many as 25% of hospitalized patients receive a Foley Catheter while hospitalized (Hartmann, Lee, Linn, Palmer, & Wroe, 2013). Catheters are inserted for multiple reasons, including post surgical mobility issues, long term mobility issues, accurate tracking of intake and output records, elimination issues, and potential for occlusion of the urethra without a catheter in place. On my current unit, the main reasons for Foley Catheter insertions are during prolonged surgeries for output and temperature tracking, expected post-surgical mobility issues, and the need for intra-bladder irrigation. The majority of the time these catheters are only in place a short time but still pose a significant risk if done incorrectly. Of the known hospital acquired infections, it is estimated that 40% result form indwelling Foley Catheters (Hartmann et al., 2013). It is also important to note that nearly 80% of urinary tact infections nation wide are associated with Foley Catheter insertion (Goodle, Carter, & Reitmeier, 20124). This number is unacceptably high due to the fact that these are preventable infections.

Foley Catheter insertion presents many issues. Among the most basic are patient complaints that these catheters are uncomfortable, decrease mobility, and are un-dignifying. There are also several potential complications that accompany placement. These catheters present an opportunity for microorganisms to enter a part of the body that is not prepared or accustomed to microorganism invasion. Bacteria are offered the ability to migrate up the catheter tubing as well as being carried by a backflow of urine. This allows bacteria and other organisms to enter the bladder, kidneys, and even blood stream (Goodle et al, 2014). The singly most important preventative measure in preventing catheter associated urinary tract infections is reducing the amount of unnecessary catheter insertions and limiting the time a catheter remains in place. Many times this is not an option, and the benefits often outweigh the risks, especially when the catheter is inserted and cared for appropriately. Common reasons for contamination include inappropriate pre-insertion care, not maintaining sterile techniques, and utilizing lubricant form multi use tubes instead of one time use forms (Goodle et al, 2014). The potential risks to patients are extensive and include increased length of stay, sepsis, and, worst-case scenario, death. Post insertion problems stem from not maintaining proper catheter care with routine cleaning and elevating the catheter bag and tubing above the level of the bladder (Goodle et al, 2014).

Health care is not cheap, but for good reason, health care costs are high and continue to rise. Often hospitals are not-for profit organizations that receive funding from the federal government. They also rely heavily on Medicare and Medicaid payments from patient stays. In order to decrease healthcare expenditures, organizations have begun to examine the healthcare industry and its practices. The center for Medicare and Medicaid services has begun to connect reimbursement to quality care. A big part of this initiative is examining hospital-acquired illnesses. Because urinary tract infections represent such a large portion of preventable conditions, it is no wonder this was a main topic of concern. As a result, the Centers for Medicare and Medicaid Services decided they would no longer pay for preventable conditions such as hospital acquired urinary tract infections after the Deficit Reduction Act of 2005 (Hartmann et al, 2013). Hospital acquired infections are said to cost the industry about $10 billions dollars per year, and catheter associated infections are around $900 per infection cost to the hospital. The cost to the hospital does not reflect the deficit from profit margins, but only the pure cost to the hospital (Hartmann et all, 2013). This is an extremely large amount of money loss and one that is easily preventable. With this extreme amount of possible revenue loss and the ease in infection prevention, it is no wonder catheter associated urinary tract infections are a topic of concern.

**Project Implementation**

Implementing this project was a multifaceted event. I first had to gain the approval form my manager, determine deficit areas, meet with catheter associated urinary tract prevention team members, develop a plan, and determine the optimal teaching platform.

When reviewing practices in the operating room at Dixie Regional Medical Center, my manager was at a loss for quality improvement projects so I was left to my own observations. After some time spent looking, I determined that Foley Catheter insertion was a key point I was interested in exploring. An interesting fact I discovered was that no continuing education was done on catheter insertion in the operating room, much of what people knew of appropriate catheter insertion came directly from mentors in the operating room, and there were nearly no checks to ensuring this procedure was carried out correctly. Once I brought these facts to my manager’s attention, Along with the lack of correct technique, she quickly accepted my proposal to implement a quality improvement project on Foley Catheter insertion and management.

Deficits in optimal techniques of Foley Catheter insertion were abundant and I quickly developed a list. Many of these deficits were basic in nature and something that no individual should forget or ignore when inserting a Foley. A catheter kit comes in sterile packaging that includes peri-care items and catheter insertion essentials. The per-care items included in each kit contain Castile soap wipes and a pack of hand sanitizer. The wipes are not antimicrobial in nature but rather aid in pre-cleaning the area and removal gross debris. The sanitizer is meant to clean the hands of the person inserting the catheter after peri-care and before insertion or application of sterile gloves. In the operating room I have never witnessed an individual use the wipes or alcohol solution for cleaning hands. Since this is a short and simple step to prevent infection, it was a point of focus. Then comes the catheter kit itself. Recently, Bard medical group has made some great improvements in the design of Foley Catheter kits and made access to essential items easier for the person inserting the catheter. These improvements mainly came from making the system all on a single level, requiring less movement to access material, and lessening the opportunity for contamination. The key point of insertion is maintaining sterility. This requires opening the package correctly, utilizing the sterile drapes available, and being cautious of external contaminates. A common factor in insertion error was not utilizing drapes, oftentimes the person inserting the Foley Catheter would simply discard the drapes provided, which would result in catheter contamination before entering the urethra. Next, they would contaminate the package when opening or from contaminated sterile gloves. Once a Foley Catheter is in place is it contraindicated to raise the catheter bag above the level of the bladder, as this causes back flow, and allows bacteria to enter the bladder. Then the bag should be suspended from the floor to reduce the possibility for contamination (Nguyen, Pereia, Stevemer, 2014).

After a long discussion with my manager on resources available to me, I found that Dixie Regional Medical Center had formed a committee with the goal of preventing catheter associate urinary tract infections. I immediately initiated communication with the committee leader and discussed the project I had in mind with her. As it turned out they had wanted to include an educational experience in the operating room but the nurse that had been working with them was out on a family or medical leave of absence, the committee however, did not know this, and thought he had just neglected their meetings. I scheduled a time to meet with the committee leader to discuss current issues and solutions to the problem. This committee had determined that that majority of Dixie Regional’s catheter associated urinary tract infections came form improper insertion techniques as well as improper post insertion management. Our correspondence continued for some time and I gained much insight into the issues they, and myself, believed the operating room to have. We agreed that much of the problem stemmed from basic insertion and care techniques that were overlooked. With the fact that 25% of all catheters inserted at Dixie Regional originate in the operating room, this is an oversight of epic proportions (Dursteler, 2014). I did learn that the operating room had the smallest occurrence of catheter associated urinary tract infections, and to date has not had any that were recognized as originating in the operating room this year (Dursteler, 2014). This does not however absolve operating room staff from the need for further education on catheter insertion. In past years there have been multiple catheter associated urinary tract infections originating in the operating room. The operating room has also had a decrease in the last year of intra-operative documentation of catheter insertion, making it difficult for those involved to gather accurate statistics, and there are a number of inserted catheters and infections that have not yet been traced to their origin. This calls into question the proposed effectiveness of the operating room staff and brings to light the lack of accurate documentation. The documentation issue alone warrants being addressed, not to mention the lack of validity this creates to current statistics.

Developing a plan and strategy for teaching was similar to developing a care plan for a patient. First I had to perform an assessment of the operating room staff and their willingness be educated, accept new information, and especially on being reeducated on their own current practices. I determined or (diagnosed) that nurses in the operating room pay very little attention to existing in-service teaching programs, which generally last for 10-15 minutes in the break room at the beginning of the day. I believe this lack of attention and attendance stems mainly from time constraints each of them faces. The operating room is a very high-paced environment and there is not a moment to lose. I also found that real life experiences that happened at Dixie Regional had more impact on the employees than educational material with examples from other medical institutions. My plan was to develop a teaching plan that utilized multiple educational angles that continually remind people of he importance of the information at hand. My implementations included utilizing educational emails, posters posted in high traffic areas (e.g. break rooms, charge station, and dressing room), and having a sign-in sheet that must be turned into the manager. The evaluation of this process was more difficult than the rest because it involved multiple mini interviews. The overall consensus was an altered attitude towards Foley Catheter insertion and a deeper appreciation for the correct process. I have also already started to notice a difference in insertion practices among operating room nurses. Personally, one of my biggest problems what that each time after Foley insertion the catheter bag was simply thrown on the floor, rather than being suspended, and I am glad to say that my manager has agreed to order stands to suspend all catheter bags from the floor.

We all practice relationship-based care on a daily basis but do not always internalize it. We need to continually be vigilant of patient care improvement possibilities. The project I undertook this semester took a great deal of time and effort. This effort is not wasted however, and knowing I played a role in improving the care of our patients is worthwhile enough.

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