Determining the Frequency for Chronic Foley Catheter

Cleaning and Changing

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Abstract

The title of this research project is "Determining the Frequency for Chronic Foley Catheter Cleaning and Changing". The project was conducted by Jeral Mack, a senior Murray State University School of Nursing student. The initial investigation for the topic of this research was to determine defined guidelines for chronic foley cleaning and changing for a hospital-specific policy. In this paper, an analysis of four published research articles was conducted to define the best practice for the prevention of catheter-associated urinary tract infections (CAUTIs) as it relates to chronic Foley catheter cleaning and changing in healthcare settings. In nursing, using the best scientific evidence-based practice is critical to the overall quality and effectiveness of patient care. Catheter-associated urinary tract infections (CAUTIs) are the most frequently reported hospital-acquired infections, (CDC, 2017). The effects of CAUTIs for patients are morbidity and mortality, greater healthcare costs, and lengthened hospital stays. Through the practice of good catheter care and decreasing the prolonged insertions of Foley catheters, the overall risk for a catheter-associated urinary tract infection is decreased.

Keywords: catheter-associated urinary tract infections, foley catheter

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Process Description

Background of the Problem

Urinary tract infections are the most common type of healthcare-associated infection reported to the National Healthcare Safety Network (NHSN), with 75% associated with urinary catheters, (CDC, 2017). Catheter-associated urinary tract infections (CAUTI) is possibly one of the most preventable types of healthcare-associated infections. The question leading the research is, "How often should chronic Foley catheters be cleaned and replaced." This question was formulated due to the lack of a hospital-specific policy with specific guidelines for the maintenance of a chronic Foley catheter as it relates to cleaning and changing.

Analyzation of the Current Policy

When analyzing the existing policy for Foley catheter guidelines, the guidelines were found to be very vague. The nurses in the unit were discovered to be using a daily bedside checklist but the checklist was not included in the facility policy. The daily bedside checklist stated, "long-term Foley catheters must be changed every 14 days, Foley care is every 12 hours, and that after 5 days of a Foley catheter, *Theraworx* must be used and charted every 4 hours."

In the section of the facility policy that described maintenance of urinary catheter, the policy included the assessment of the Foley catheter every shift, but did not list the specific frequency in which the chronic Foley catheter should be cleaned, what, if any specific cleaning tool should be used or the frequency for the chronic Foley catheter to be changed.

According to the Guideline for Prevention of Catheter-Associated Urinary Tract

Infections, "changing indwelling catheters or drainage bags at routine, fixed intervals is not

recommended," (CDC, 2017). It is also stated to, "not use systemic antimicrobials routinely to prevent CAUTI in patients requiring either short or long-term catheterization."

In addition to adding the daily bedside checklist to the facility policy, evidence-based research needed to be conducted to determine if the practice was the current best practice to even implement.

Theoretical Framework

The theoretical framework utilized to guide the research and shape this project was the Need Theory. The Need Theory was developed by Virginia Henderson who stressed the importance of the patient's independence past hospitalization in an effort to not delay patient progress, (Ahtisham, 2015, p. 444). In this theory there are four major concepts: the individual, the environment, health and nursing. In Henderson's perspective individuals have basic needs that are a part of their health. In relation to these basic needs, Henderson defined fourteen components based on human needs that nurses should assess.

Table 1	The fourteen components based on human
	needs
1	Breathe normally.
2	Eat and drink adequately.
3	Eliminate body wastes
4	Move and maintain desirable postures
5	Sleep and rest.
6	Select suitable clothes-dress and undress

7	Maintain body temperature within normal			
	range by adjusting clothing and modifying			
	environment			
8	Keep the body clean and well groomed and			
	protect the integument			
9	Avoid dangers in the environment and avoid			
	injuring others			
10	Communicate with others in expressing			
	emotions, needs, fears, or opinions			
11	Worship according to one's faith			
12	Work in such a way that there is a sense of			
	accomplishment			
13	Play or participate in various forms of			
	recreation			
14	Learn, discover, or satisfy the curiosity that			
	leads to normal development and health and			
	use the available health facilities			

(Ahtisham, 2015, p. 445)

Evidence

 Prevention of urinary infection: quality indicators of nursing assistance in elderly (Moreira Arrais, 2017).

In 2017, Moreira Arrais, E. L., Cunha de Oliveira, M. L., & Borges de Sousa, I. D, used a "prospective quantitative-based study design to measure, identify and compare the indicators of quality assessment of nursing care, related to bladder catherization before and after implementation of an instrument for recording indicators in the routine sector studied focused on the prevention of urinary infection", (Moreira Arrais, 2017, p. 3152). The implementation of instrument was carried out in a different study than this one. This study evaluated and compared the quality of the assistance provided before and after this implementation.

The study was conducted in an emergency unit of a public hospital. These researchers used a sample (N = 258) of patients. The data was collected on random days from July 2015 to February 2016. The sample included elderly patients, greater than sixty years of age, of both sexes, with greater than twenty-four hours of admission. Data was collected through the development of an "Active Search Registry". Data was submitted into the instrument two times. The first collection was before the implementation in the sector of the instrument and the second, one month after the implementation. Using quantitative methods, Moreira Arrais et al. (2017) found in regard to the identification of the delayed bladder catheter, the positivity index considered "adequate" was reached in the two collections performed. Fixation was well below the Ideal Conformity Index (IDC) in both data collections and poor care was applied in the first collection and borderline in the second. Based upon these results it was concluded that there is a need for training measures in order to sensitize the nursing

team of the studied unit regarding importance of preventative measures of urinary infection related to delayed bladder catherization. The nursing team also needs to identify that bladder catheter care is a complex and routine procedure. This Level 2 research study was reasonably well conducted. One limitation to the study would be the department in which the study was conducted. The study might have warranted more data if collected in an in-house unit such as a ICU or MedSurg unit. Despite limitations, I believe that the findings of this study by Moreira Arrais et al., (2017), are generalizable with caution to the specific patient population.

II. Exploring relationships of catheter-associated urinary tract infection and blockage in people with long-term indwelling urinary catheters.

In 2017, Wilde, M. H., McMahon, J. M., Crean, H. F., & Brasch, J., used a secondary data analysis design conducted from a sample in a randomized clinical trial to describe and explore relationships among catheter problems in long-term indwelling urinary catheter users and to determine whether catheter self-management could decrease catheter-related problems. These researchers used a sample (N = 202) of community residing long-term indwelling urinary catheter users referred from two sites. Screening took place by phone at a university site and second was through a home care agency that collaborated to recruit three-quarters of the sample. Participants were only included in the study if they were expected to use an indwelling urinary catheter for at least a year, had access to phone for interviews, and planned to live in region for at least for months.

Data was collected from six bi-monthly interviews from the parent study that lasted over 12 months. The intervention group received three home visits by trained study nurses. With the experimental and control group from parent study the CAUTI outcomes did not

differ by group. Both groups showed improvement in CAUTI major outcomes. It was found that cather-related urinary tract infection (CAUTI) is related to catheter blockage. In relation to clinical nursing practice, nurses can develop care management strategies to pinpoint catheter blockage before it occurs in an effort to prevent catheter-related urinary tract infection.

This Level 1 research study was well conducted. One limitation of the study was that the outcomes were self-reported and the identification of CAUTI was a patient report of a physician diagnosis and treatment for CAUTI. "More research is needed to determine patient-reported patterns of catheter problems", (Wilde, 2017, p. 2569). Despite limitations, I believe that the findings of this study by Wilde et al., (2017), are generalizable with caution to the specific patient population.

III. Trauma and intensive care nursing knowledge and attitude of foley catheter insertion and maintenance.

In 2018, Shaver, B., Eyerly-Webb, S. A., Gibney, Z., Silverman, L., Pineda, C., & Solomon, R. J, used a prospective cohort study design to evaluate, "nurses' clinical knowledge and attitude toward Foley catheter insertion and maintenance to determine the benefits of addressing the gaps in knowledge and inconsistencies in attitude through education", (Shaver, 2018, p. 66). These researchers used a sample (N = 48) registered nurses from the emergency room, trauma/surgical and medical intensive care units (ICUs). All participants voluntarily participated in the study. Survey questions using a Likert-type scale were used to assess the nurse's knowledge regarding Foley catheter insertion and maintenance based upon the CDC guidelines. There were twenty questions, ten assessing

current knowledge regarding Foley catheter insertion and maintenance and ten questions regarding attitude about the same concepts. A presurvey and postsurvey was given. A foley catheter manufacturer conducted a site surveillance study and gave product training and simulation sessions as educational initiative, (Shaver, 2018, p. 67). A rounding observation of ICU patients was conducted before and after the educational initiative. Using quantitative methods, Shaver et al. (2018) found the impact of the session on nurses improved the knowledge score of each participant. However, the participants attitude about the current standards did not change.

This Level 1 research study was well conducted. A limitation of this study would be the small sample size, which affected the generalizability of the results. Another limitation to the study would be that there was not a long-term follow-up to see how the intervention effective direct patient outcomes with efficient Foley catheter maintenance. Despite limitations, I believe that the findings of this study by Shaver et al., (2018) are generalizable with caution to the specific patient population.

IV. Using a criteria-based reminder to reduce use of indwelling urinary catheters and decrease urinary tract infections

In 2013, Yin-Yin Chen, Mei-Man Chi, Yu-Chih Chen, Yu-Jiun Chan, Shin-Shang Chou, & Fu-Der Wang used a randomized control trial study design to "determine whether a reminder approach reduces the use of urinary catheters and the incidence of catheter-associated urinary tract infections", (Yin-Yin Chen, 2013, p. 105). These researchers used a sample (N = 278) of patients in two respiratory intensive care units (RICUs) in a medical center. Adult patients were included if they had an indwelling catheter during the timeframe

of the study. Random numbers were generated by a computer and assigned to patients that were either a part of the control group or the intervention group. Patients with catheters in the intervention group, by the seventh day were evaluated using removal criteria-based reminder sheet to decide viability of catheter removal. The study was conducted for 7 months. A perprotocol analysis for those who had catheter removed in less than or equal to seven days. Those who did not have removed within the defined timeframe did not qualify for perprotocol analysis. Using quantitative methods, Yin-Yin Chen et al. (2015) found that the success rate for removing catheters by day 7 was 88% and the utilization rate decreased by 22%. The "risk for CAUTI was 3.5 times less when urinary catheter was used for seven days or less, (yin-Yin Chen, 2013, p. 112).

This Level 1 research study was well conducted. One limitation of this study was the patient population that was used because most patients were receiving mechanical ventilation and needed urinary catheter for at least seven days. Despite limitations, I believe that the findings of this study by Yin-Yin Chen et al., (2015) are generalizable with caution to the specific patient population.

Proposed Policy

Insertion of all Foley catheters requires a physician order. All Foley catheters should meet Medical Necessity Criteria for placement and should be left in place only as long as medically indicated. Physicians should evaluate patients daily for the need of the urinary catheter. Nursing should evaluate and document Medical Necessity Criteria every shift.

GUIDELINES:

• Best practice is to avoid use of Foley catheters and place only when necessary.

- Minimize continued use of Foley catheters and discontinue catheter as soon as
 possible to eliminate/reduce risk of catheter associated urinary tract infections.
- Ensure appropriate catheter care is completed.
- Track Medical Necessity Criteria for catheter usage.
- Secure Foley catheter to leg.
- Assess Foley catheter every shift for continued need and remove as soon as possible.
- Keep foley drainage bag below the level of the bladder at all times.
- Avoid breaks to the closed system.
- Provide catheter care (see maintenance).

Medical Necessity Criteria for anchoring a Foley catheter:

- Acute retention (see Appendix 1 on page 4 for algorithm to support Nursing practice)
- Acute obstruction
- Terminal care/comfort measure for end-of-life care
- Selected surgeries (GU tract, abdomen)
- Sacral or perineal wound management (Stage III/IV)
- Required activity restriction from trauma, surgery, (e.g. unstable spine, fracture, hemodynamics)
- Chronic history of urinary catheter
- Monitoring of strict I & O (i.e. hourly output in unstable critical patient requiring frequent medical intervention)

In addition to the Medical Necessity Criteria outlined above, the patient's urinary catheter may remain in the following instance:

 A urologist is assigned to the case. The urinary catheter cannot be removed without an order from the urologist.

*Nursing should remove the Foley catheter within 24 hours of insertion utilizing the

Urinary Catheter Removal Protocol (Appendix 2, page 5) unless one of the above

Medical Necessity Criteria is present or it is a urology patient.

If a patient is admitted with a Foley catheter in place (not placed at BH)

The patient should be assessed for the continued need or possible discontinuation if Medical Necessity Criteria is not met for the urinary catheters.

It is at the discretion of the physician if the foley needs to be changed or a
specimen for UA should be collected. A Physician's order is necessary to
change an existing Foley catheter that is in place on the arrival at a Baptist
Health facility.

Possible alternatives to consider prior to insertion of Foley catheter:

- Bladder scan
- In & out catherization
- External devices such as condom catheters
- Assist patient to sit or stand in order to void (if condition permits)
- Development and assistance with a routine toileting schedule
- Placing commode, urinal or bedpan at/by the bedside

Insertion of foley catheter:

- Requires physician order
- Review Medical Necessity Criteria and evaluate for appropriate type of catheter to be placed

- Provide patient/family with education of indications for utilization of Foley catheter as well as goal for removal when no linger medically necessary. Document all education
- Perform hand hygiene
- Put on personal protective equipment (PPE) as applicable
- Provide perineal care prior to insertion
- Use gloves, drape, and appropriate antiseptic solution for urinary mental cleaning
- Urinary catheter should be inserted using aseptic technique and sterile equipment
 For insertion: use the provided 10 mL of sterile lubricating jelly to insert
- Immediately following insertion, apply foley secure net device to patient's leg

Maintenance of Urinary Catheter:

- Use criteria-based reminder for removal of indwelling catheter (Yin-Yin Chen, 2013,
 p. 113)
- Do not use any protocol or fixed routine of cleaning or replacing chronic Foley catheter (CDC, 2017, p. 13)
- Do not use any systematic antimicrobials for routine use in cleaning Foley catheter
 (CDC, 2017, p. 13)
- Maintain urinary catheter securement device and change as needed.
- If any break occurs in the closed system, the entire system must be replaced.
- Daily catheter care should include:
 - Maintain sterile, closed urinary drainage system
 - Perform routine care of the catheter and meatus qshift, after bowel movements and PRN. Document in EMR

- Maintain urinary drainage bag below the level of the bladder at all times
- Empty the urinary bag when half full to avoid overfilling and potential backflow of urine
- Empty the urinary bag prior to any transport of the patient for procedures, tests, etc.
- Keep the drainage bag off the floor
- The draining spigot and non-sterile collecting container should not come in contact
- Maintain unobstructed flow
- Evaluate Medical Necessity each shift and document accordingly in the EMR

 In this policy documented above, the changes that were made to the policy concerned proper

 Foley catheter maintenance. Aside from the facility policy there was a that was being
 implemented aside from the organizational policy there was a facility protocol being being
 implemented on units in the hospital. A daily bedside checklist had been given for registered
 nurses to use each shift that included a Foley catheter protocol for the cleaning and replacing of
 short- and long-term Foley catheters. Therefore, the research question was composed to address
 the frequency of chronic Foley catheter cleaning and replacing and its needed to be added to the
 policy. Through research article analysis it was determined that there should not be a protocol for
 the frequency of replacing Foley catheter nor should there be a specific routine use of
 antimicrobials in cleaning Foley catheters added to the policy.

Implementation into Professional Practice

The best manner in which to educate the nursing staff about the changes in the policy would be through educational training ((Shaver, 2018, p. 66). Through a collaborative effort of

staff to prevent CAUTIs, the knowledge gaps between differing protocols and policies need to be addressed to facilitate proper urinalysis catheter maintenance. I believe that the staff should take a pre-survey regarding urinary catheter maintenance before the educational training, and then complete a post-survey following the educational training. The nursing leaders should then evaluate whether the educational training resulted in improved Foley catheter maintenance by completing bi-weekly or bi-monthly nurse competencies for every nurse. These findings can than assess the complaisance of the educational training that was given.

Conclusion

Through research outlining new interventions for Foley catheter care, the rates of CAUTIs has decreased over the past few years, (CDC, 2017). However, as research continues to change, policies regarding Foley catheter care should continually change and represent the latest in evidence-based practice. The research project completed as discussed in this paper, was to answer the question posed, ""How often should chronic Foley catheters be cleaned and replaced." It was found through this research project that there should not be a defined frequency on when to replace Foley catheters, or a defined routine with use of antimicrobials to clean Foley catheters. However, there should be knowledge based implementations included in policies to increase knowledge and provide better outcomes.

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Copy of Old Policy

The policy is listed below as well as the separate protocol.

TITLE/SUBJECT	Foley Catheter Guidelines	
PURPOSE	To prevent urinary catheter associated urinary tract infections during hospitalization and other complications related to indwelling urinary catheter, foley catheters should be used when necessary and left in place only as long as medically indicated. Nursing should discontinue the catheter if placement does not meet one of the criteria listed below.	
SCOPE	Baptist Healthcare System, Inc. [BH] hospitals, BHMG, and all entities or affiliates of which BH is the sole member.	
AUTHORIZATION	Vice President, Safety, Quality, and Patient Experience	
	POLICY	

Insertion of all foley catheters requires a physician order. All foley catheters should meet Medical Necessity Criteria for placement and should be left in place only as long as medically indicated. Physicians should evaluate patients daily for the need of the urinary catheter. Nursing should evaluate and document Medical Necessity Criteria every shift.

GUIDELINES:

- Best practice is to avoid use of foley catheters and place only when necessary.
- Minimize continued use of foley catheters and discontinue catheter as soon as possible to eliminate/reduce risk of catheter associated urinary tract infections.
- Ensure appropriate catheter care is completed.
- Track Medical Necessity Criteria for catheter usage.
- · Secure foley catheter to leg.
- Assess foley catheter every shift for continued need and remove as soon as possible.
- Keep foley drainage bag below the level of the bladder at all times.
- · Avoid breaks to the closed system.
- Provide catheter care (see maintenance).



Medical Necessity Criteria for anchoring a foley catheter:

- Acute retention (See Appendix 1 on page 4 for algorithm to support Nursing practice)
- Acute obstruction
- Terminal care/comfort measure for end-of-life care
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- Chronic history of urinary catheter
- Monitoring of strict I & O (i.e. hourly output in unstable critical patient requiring frequent medical intervention)

In addition to the Medical Necessity Criteria outlined above, the patient's urinary catheter may remain in the following instance:

A urologist is assigned to the case. The urinary catheter cannot be removed without an
order from the urologist.

*Nursing should remove the foley catheter within 24 hours of insertion utilizing the Urinary Catheter Removal Protocol (Appendix 2, page 5) unless one of the above Medical Necessity Criteria is present or it is a urology patient.

If a patient is admitted with a foley catheter in place (not placed at BH)

The patient should be assessed for the continued need or possible discontinuation if Medical Necessity Criteria is not met for the urinary catheter.

 It is at the discretion of the physician if the foley needs to be changed or a specimen for UA should be collected. A Physician's order is necessary to change an existing foley catheter that is in place on the arrival to a Baptist Health facility.

Possible alternatives to consider prior to insertion of foley catheter:

- Bladder scan
- · In & out catheterization
- · External devices such as condom catheters
- · Assist patient to sit or stand in order to void (if condition permits)
- · Development and assistance with a routine toileting schedule
- Placing commode, urinal or bedpan at/by the bedside

Insertion of foley catheter:

- · Requires physician order
- Review medical necessity criteria and evaluate for appropriate type of catheter to be placed
- Provide patient/family with education of indications for utilization of foley catheter as well as goal for removal when no longer medically necessary. Document all education

- Perform hand hygiene
- Put on personal protective equipment (PPE) as applicable
- · Provide perineal care prior to insertion
- Use gloves, drape, and appropriate antiseptic solution for urinary meatal cleaning
- Urinary catheter should be inserted using aseptic technique and sterile equipment For insertion: use the provided 10 ml of sterile lubricating jelly to insert
- Immediately following insertion, apply foley securement device to patient's leg

Maintenance of Urinary Catheter:

- Maintain urinary catheter securement device and change as needed.
- If any break occurs in the closed system, the entire system must be replaced.
- · Daily catheter care should include:
 - Maintain sterile, closed urinary drainage system
 - Perform routine care of the catheter and meatus qshift, after bowel movements and PRN. Document in the EMR
 - Maintain urinary drainage bag below the level of the bladder at all times
 - Empty the urinary bag when half full to avoid overfilling and potential backflow of
 - Empty the urinary bag prior to any transport of the patient for procedures, tests,
 - Keep the drainage bag off the floor
 - The draining spigot and non-sterile collecting container should not come in contact
 - Maintain unobstructed flow
 - Evaluate medical necessity each shift and document accordingly in the EMR

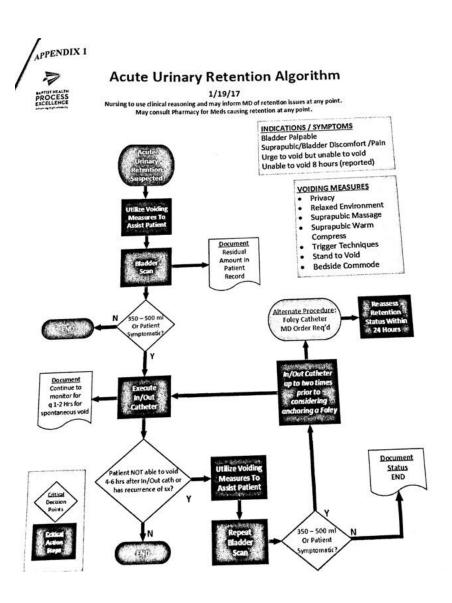
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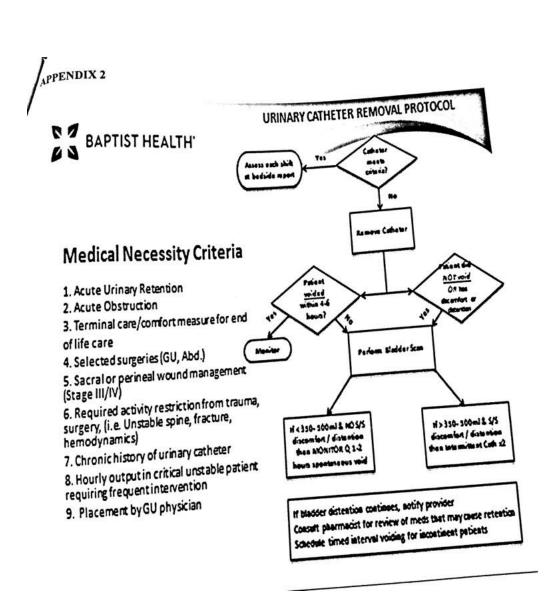
Karen Higdon **Baptist Health**

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Vice President, Safety, Quality, and Patient Experience

Date: May 9, 2017





(Drains/Tubes—urethral cathetercat Days Foley in place:	· Yes	No	
Is Foley due to be changed			
Is Foley dated and timed			
Does Foley meet criteria to be removed		Reason:	
ls securement device in place		- Houselff	
Is Theraworx at bedside to be used			
Consults called? Review CMS checklists (ALL C Review required documental This report must be completed on each	liure to comply with process wil	mplete) complete In designated location. These I result in corrective action.	vill be chec
1			
On-Coming RN:	Date/time:		.,