Speaking the same language: Uniformly defining critically ill patients for Foley use to decrease catheter utilizations in an Intermediate Care Unit.

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ABSTRACT

Aim: The goal of this project is to uniformly define what constitutes a critically ill patient to enable a change in Foley usage on an Intermediate Care Unit.

Objectives: To eliminate or reduce the frequency of catheter utilizations and catheter associated infection (CAUTI) in an Intermediate Care Unit.

Background: Catheter-associated urinary tract infection (CAUTI) is a common health care-associated infection (HAI), a costly frequent condition resulting in patient discomfort, activity restriction and prolong hospital stay. CAUTI is one of the eight conditions that the Center for Medicaid and Medicare Service (CMS) no longer reimburses the hospitals for the extra cost of caring for patient who develop CAUTI.

Methods: Step 1, gather and analyze data on 20 patients to identify those who received Foley, and frequency of Foley usage and infection rate. Step 2, determine what constitute critically ill patient. Step 3, educate nursing staff on the need to uniformly define what constitute critically ill patients to reduce Foley usage and cut down the rate of infection. Step 4, after 4 weeks evaluate nursing staff to ascertain compliance with the training. Step 5, provide findings and make recommendation.

Result and Conclusion: Audit showed the prevalence of indwelling Urinary Catheter (UC) and Foley usage reduced from a baseline of 47.9% to 28% post-intervention. Uniformly defining critically ill patients for Foley use can decrease catheter utilizations in an Intermediate Care Unit.

PROBLEM BACKGROUND

Catheter-associated urinary tract infection (CAUTI) is a common health care-associated infection (HAI), a costly frequent condition resulting in patient discomfort, activity restriction, prolongs hospital stay. Additionally, it is one of the eight conditions that the Center for Medicaid and Medicare Service (CMS) no longer reimburses hospitals for the extra cost of caring for patient who develop CAUTI. The attempt for the hospital to adhere to the
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CDC guidelines to decrease the frequency of CAUTI by following the appropriate and recommended guidelines for UC usage and in-dwell duration has fallen short of meeting the CDC objectives in an Intermediate Care Unit.

The Catheter Associated Urinary Tract Infection (CAUTI) project was initiated on September 14, 2011 at a major hospital in Michigan. The catheters are inserted for clinical reasons and remain in only as long as clinically indicated. The five clinically indicated reasons are: 1) End of life 2) Incontinence with open pressure ulcers 3) Urinary obstruction or retention 4) Strict Immobilization and 5) Accurate urine measurement in the critically ill patient. A current audit in the Intermediate Care Unit has identified the most used indication for Foley catheter placement to be the fifth indication which is the accurate urine measurement in the critically ill patient. This indication is being used for patients who are undergoing intermittent IV or continuous IV diuresis. The nursing and medical staff are taking the accurate urine measurement portion of the clinical indication as rationalization for use of Foley on every patient rather than taking into consideration its full intent. This research paper focuses on identifying what constitutes critically ill patient to reduce the usage of Foley in an Intermediate Care Unit.

**Problem Focused Triggers**

Lack of knowledge about what constitute a critically ill patient has increased the rate of Foley catheter point-in-time prevalence to an average of 47.9% (Unit data, 2012). Also, lack of uniform definition amongst the nursing and medical staff of critically ill patient has increased the rate of Foley catheter point-in-time prevalence to an average of 47.9%. In addition, Foley catheters should not be used for the convenience of either nurses or patients, however, the reasons for inappropriate placement of Foleys or for failure to discontinue the unnecessary use of Foleys includes unfamiliarity with the indications for use and lack of a defined nursing management plan to monitor their presence and need.

**Knowledge Triggers**

The Center for Medicare and Medicaid Services (CMS) no longer reimburses hospitals for the extra cost of caring for patients who develop CAUTI. CAUTI constitute 40% of all institutionally acquired infections. Roughly 50% of patients with a Foley do not have a valid reason for catheter placement. Of the 600,000 hospital acquired UTIs annually 80% are from a Foley catheter (CDC, 2009). Each day that the catheter is left in place, the risk of acquiring an infection increases by 5%.
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RELEVANT EVIDENCE

A study by Fakih, Dueweke, Meisner, Berriel-Cass, Savoy-Moore, Brach, Rey, DeSantis, and Saravolatz, (2008) revealed that a nurse-led multidisciplinary approach to evaluate the need of Urinary Catheterization (UC) was associated with a reduction of unnecessary UC use. Four thousand nine hundred and sixty three (4,963) patient-days observed, a UC was present in 885 (total of 885 “UC-days”) (Fakih et al., 2008). Noted also was a major reduction in the rate of UC use from 203 UC-day per 1000 patient-days in the pre-intervention phase to 162 UC-days per 1000 patient-days in the intervention phase (Fakih et al., 2008). The study carried by Fakih et al., (2008), was a quasi-experimental study with a control group, in 3 phases: pre-intervention, intervention and post-intervention. The study focused on reducing the unnecessary use of UCs in hospitalized patients. Nursing staffs that were trained in clinical indication for UC utilization participated in daily multidisciplinary rounds on twelve medical-surgical units, and if no proper indication for patient’s UC was found the nursing staff should take the necessary steps to discontinue the catheter. Result showed a reduction in the rate of utilization in both groups. The nurse-led intervention was associated with discontinuation of 45% of catheters that did not meet the indicated criteria (Fakih et al., 2008). Strengths = data collection over a 1 year period involving 12 medical-surgical units within a 608-bed teaching hospital and there was a control group in the study. LOE=IIIB.

Gotelli, Merryman, Carr, McElveen, Epperson and Bynum (2008), carried out a quality improvement study design to reduce the prevalence of unnecessary indwelling UC as well as the rate of catheter-associated urinary tract infection (UTI). The project allowed RNs to independently assess the continued need for UC based on agreed upon literature-supported indicator for ongoing use, and if no criteria for indication were found the RN can remove the catheter without an order. Using a quality improvement framework as a model, the team collected data for one year to establish a baseline. The intervention was piloted over a 5-month period, and post intervention data was collected also for 5-month period. Result shows the prevalence of indwelling UC reduced from a baseline of 24% to 17% post-intervention (Gotelli et al., 2008). However, the UTI rate remains the same. Strength=data was collected over a 1 year period; weakness=conducted on an 8 bed unit in a single hospital and no control group. LOE = VIB.

Oman, Makic, Fink, Schraeder, Hulett, Keech, and Wald (2011), conducted an evidence-based practice guidelines study implementing nurse-directed interventions to reduce catheter-associated urinary tract infections. The study focused on decreasing CAUTI rates through implementation of hospital wide nursing interventions that emphasized education on early removal of IUCs for inpatient nurses on 2 medical/surgical units. All nursing staff
were educated on risk factors associated with IUCs and recommended prevention interventions, a bladder scanner was purchased and more bedside commodes were available to the patients. Results indicated that the number of catheter days reduced from 3.53 to 2.7 and 3.01 to 2.2, on both units respectively (Oman et al., 2011). However, CAUTI rates were too low to achieve reasonable reduction. LOE = IB.

The CDC’s carried out a systematic literature review to revise the original CAUTI guideline that was published in 1981. Three main questions and sub-questions were addressed by the CDC, they are:

“Who should receive urinary catheters?"
   a. When is urinary catheterization necessary?
   b. What are the risk factors for CAUTI?
   c. What populations are at highest risk of mortality from catheters?

For those who may require urinary catheters, what are the risks and benefits associated with:

   a. Different approaches to catheterization; catheters or collecting systems; catheter management techniques; systems interventions (i.e., quality improvement programs)?

What are the best practices for preventing UTI associated with obstructed urinary catheters”?

More specific direction or clarification for CAUTI implementation was provided by the revised guidelines (CDC/HICPAC, 2009). LOE = VB.

SYNTHESIS OF EVIDENCE

Summary and Recommendations: Nurse-directed interventions were effective in decreasing the prevalence of unnecessary use of urinary catheters in hospitalized patients. Guideline from research and other evidence-based practice can improve patient outcome regarding CAUTI. All attempts should be made to promote nurse driven interventions by educating the nursing staff on clinical indicators and to advocate for continued nurse-driven intervention hospital wide.

Quality &Types of Evidence: The evidence from Fakih et. al., (2008), Gotelli et. al, (2008), & Oman et. al. (2011) showed that nurse-driven intervention can reduce the prevalence of unnecessary use of urinary catheters in hospitalized patients. Most evidences were qualitative studies and overall qualities are good (level I – VI) (Fakih et. al., 2008), Gotelli et. al, (2008), Oman et. al. (2011), & CDC, (2009).

Strengths & limitations of evidence: All evidences supporting nurse-driven intervention were level 1 or lower, the studies were done in a couple of units in the hospital. CAUTI rates were too low to achieve reasonable reduction.
However, since substantial evidences are supportive of the effectiveness of nurse-driven intervention in reducing the prevalence of unnecessary UCs use, effort should be made to promote this practice hospital wide [(Fakih et. al., (2008), Gotelli et. al., (2008), Oman et. al., (2011)].

METHODS:

The following process or method was utilized in this research. Step 1, gather and analyze data on 20 patients to identify those who received Foley, frequency of Foley usage and infection rate. Step 2, determine what constitute critically ill patient. Step 3, educate nursing staff on the need to uniformly define what constitute critically ill patients to reduce Foley usage and cut down the rate of infection. Step 4, after 4 weeks evaluate nursing staff to ascertain compliance with the training. Step 5 provide findings and make recommendation.

THEORETICAL FOUNDATION

The paper applied both Orem’s Key Concepts of Self Care and Orem’s Self-Care Deficit theory and Kurt Lewin’s Change Theory.

Orem’s Key Concepts of Self Care and Self Care Deficit Theory (1971)

Dorothea Orem (1971), theory stated that the ailment that justifies the existence of a requirement of nursing in an adult is the health associated absence of the ability to preserve continuously that amount and quality of self-care that is therapeutic in sustaining life and health, recover from disease or injury, or in coping with their effects.

Orem’s Self Care

According Orem, self-care included activities which an individual initiate and perform on his/her behalf in order to maintain life, health, or well-being throughout life. The patients in an intermediate care unit may not have the ability as well as the social support to help them through their stay in the unit. The individual could learn a behavior through the nurse encouraging him/her to void, offered urinal, and plan time voiding.

Orem’s Self Care Deficit

Self-care deficit occurs when the patients in the Intermediate Care Unit fall short of being able to maintain functional integrity of elimination. The therapeutic self-care demands can either be actual or potential evidenced by the patient’s ability to void without the use of Foley, and this can be achieved through the nurses encouraging the patients to void, offering urinal, and planning time voiding, thereby discouraging the use of Foley catheters for the convenience of either nurses or patients. Uniformly defining what constitute critically ill patients will help to
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decrease or eliminate Foley usage and in turn decrease or eliminate inappropriate catheter associated urinary tract infection.

**PICOT QUESTION**

For adult patients entering the Intermediate Care Unit with catheter associated urinary tract infection (CAUTI), will educating the nursing staff to speak the same language in defining what constitute critically ill patients decrease or eliminate inappropriate Foley usage as compared to not defining the language help in decreasing or eliminating catheter associated urinary tract infection for 10 weeks period?

**Kurt Lewin’s Change Theory**

Lewin (1947) identified three phases that the change agent must ensue before a planned change becomes part of the system – Unfreezing, Experiencing the change or movement and Refreezing.

**Unfreezing** consist of awareness by the unit staff of the need for change based upon the problem-focused and knowledge-focused triggers (Lewin, 1947).

**Experiencing the change or movement:** Nursing staff were educated on evidence-based practice standards and literature that supports nurse-driven intervention can reduce the prevalence of unnecessary use of urinary catheters in hospitalized patients. Uniformly defining what constitute critically ill patient, educating and encouraging nursing staff to adhere to the criteria will facilitate reduction of or eliminate inappropriate Foley usage. Educating and encouraging patients to ask for urinal, commode, or bedpan when the need to void arose. Encouraging RNs to independently assess continued need for Foley based on literature-supported indicator for ongoing use, and if no criteria for indication were found the RN can remove the Foley without an order. This will discourage Foley use for either patients’ or nurses’ convenience, or for intermittent diuresis (Lewin, 1947).

**Refreezing:** Support from Nurse Supervisor, and clinical nurse specialist in educating and encouraging nursing staff to assess need for Foley every shift, and the nursing staff were encouraged to integrate change into their work process. Reduction in the rate of utilization of Foley that did not meet indicated criteria will be used to assess compliance (Lewin, 1947); any nursing staff resisting change will be reported to the nurse supervisor and clinical specialist and possibly re-educated on a one–on-one basis, or continued education of the general staff.

**EVIDENCE-BASED PRACTICE PLAN**

The Intermediate Care Unit clinical supervisor, clinical nurse specialist, and nursing staff are educated on speaking the same language to uniformly defining critically ill patient for Foley use to decrease catheter utilizations
Defining critically ill patients for Foley use on an Intermediate Care Unit. This paper or poster was presented in the Intermediate care unit conference room to nursing staff and also at the Meeting of Minds conference. Critically ill patients defined uniformly, was submitted to the intermediate care unit and will continue to be evaluated by unit staff for five months in other to determine if the unnecessary utilization of Foley in Intermediate Care Unit patients was reduced. Foley should not be inserted in patients that are oriented, alert, and knows when they want to void. In addition, Foley should not be used for diuresis, patient on PCA, or for either patients/nurses’ convenience. Other methods that nursing staff can utilize to avoid using a Foley include: bladder scanning; intermittent straight catheterization (ISC); condom catheters; and nurses encouraging patients to void by offering urinal, bedpan/commode, and planned time-voiding.

**ALGORITHM FOR REMOVAL OF UNNECESSARY INDWELL FOLEY**

**EVALUATION PLAN**

The evaluation will be carried out for five months after educating the nursing staff. This will be done through a weekly audit to check if the nurses are adhering to the change process, and there is reduction to 28% in unnecessary use of Foley catheters. Current audit showed the prevalence of indwelling UC reduced from a baseline of 47.9% to 28% post-intervention. Does educating the nursing staff to speak the same language or uniformly defining what constitute critically ill patients decrease or eliminate unnecessary Foley usage? It was evidenced by the reduction in point-in-time prevalence of Foley to 28% following the new language of Foley usage in comparison to past audited rate of point-in-time prevalence of 47.9%. Incorporation of the change process is expected to maintain an average point-in-time prevalence of Foley reduction to 10% to 15% which the acceptable level for Intermediate Care Unit.
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- Benefits exceeds costs = practice change is likely to be cost-effective
- Ongoing audit for five months during implementation
- Audit showed the prevalence of indwelling UC reduced from a baseline of 47.9% to 28% post-intervention
- Incorporation of change process expected to maintain an average point-in-time prevalence of Foley reduction to 10-15% the acceptable level for Intermediate Care Unit.
- Reduction in the rate of utilization of Foley that did not meet indicated criteria
- Increase in patient comfort, and reduce activity restriction

CONCLUSION

The attempt for this hospital to adhere to CDC guidelines in order to decrease frequency of CAUTI by following appropriate indications and recommended guidelines for Urinary Catheter (UC) usage and in-dwell duration has fallen short of meeting CDC objectives in an Intermediate Care Unit. In addition, significant evidences are supportive of the effectiveness of nurse-driven intervention in reducing the prevalence of unnecessary urinary catheters use in hospitalized patient. Uniformly defining what constitute critically ill patients show reduction in point-in-time prevalence and in-dwell time to an average of 28%, when compared to previous unit data of 47.9%. Both Lewin’s Change Theory (1947) and Orem’s Self Care theory (1971) supports the education of nursing staff to effectively manage Foley catheters usage and in turn reduce or eliminate the unnecessary use of Foley catheter thereby improve the health of the patient in the unit. Also, since benefits exceed cost in this change process, the practice change is likely to be cost effective. Finally, some nursing staff played a key role in integrating the change strategy and has helped to reduce the in-dwell time of Foleys in the unit to 28%; however, success of the change will be determined if the reduction is maintained between an average of 10% to 15% in five months after completion of the study. More research needs to be done to determine success rate.
REFERENCE


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