ELIMINATING CATHETER-ASSOCIATED URINARY TRACT INFECTIONS: IMPLEMENTING A QUALITY IMPROVEMENT PROJECT

by

Chemain Gudino, MSN, RN, CBN, PHN

JoAnn Manty, DNP, RN, Faculty Mentor

Tyra Ousley, EdD, MSN, RN, Committee Member

Lourdes Januszewicz, MSN, ACNS-BC, CCRN, Committee Member

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Eliminating Catheter-Associated Urinary Tract Infections: Implementing a Quality Improvement Project

A catheter-associated urinary tract infection (CAUTI) can extend a patient's hospital stay by two days and increase the cost of their care. The complications associated with indwelling urinary catheter and the increases in hospital-acquired infections are a continual challenge to quality care. [1-3,5] In many cases, the Centers for Medicare and Medicaid Services (CMS) and other insurers regard catheter-associated urinary tract infections as a preventable condition. Quality improvement and patient safety are at the forefront of much needed changes in integrated health services. CMS has initiated pay for performance initiatives by decreasing revenue for failure to follow quality of care processes. Effective January 2015, CMS will initiate mandatory reporting of all catheter-associated urinary tract infections (CAUTIs) hospital wide. [2,4]

Improving patient safety and promoting positive care outcomes have been the hallmarks of our ever-changing healthcare environment.[4] Hospital data collected by the Centers for Disease Control and Prevention (CDC) specifically targeting CAUTI in patients with urinary catheters in place for greater than two days revealed a staggering 32% of all hospital-acquired infections. An estimated 449,000 CAUTIs occur in United States hospitals each year at a cost of greater than $450 million.[1-3]

Various methods were examined in the reduction and prevention of CAUTIs. It was determined that older adults with chronic ailments were prone to increased risk of urinary tract infection compared to young adults necessitating intermittent short-term urethral catheter use.[1] In contrast, initial and maintenance infection control practices

associated with urinary catheter use directly increase the potential of infection in adult patients regardless of age if not instituted appropriately.[1-3,5]

The goal of this quality improvement project was to reduce the number of CAUTI infections hospital wide by preventing unnecessary insertion of urinary catheters and prompt removal of those that are no longer medically warranted. Many hospital-acquired infections were preventable when evidence-based practices are implemented and consistently maintained. Minimizing the inappropriate use of indwelling urinary catheters requires support of the entire collaborative healthcare team (physicians, nurses, and leadership) to prevent unnecessary CAUTIs.[1,3,5]

Prevention Strategies

An intervention toolkit that focused on core CAUTI detection and prevention strategies was discussed with the healthcare infection prevention team. The following CAUTI prevention strategies recommended by the CDC, Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Association for Professionals in Infection Control and Epidemiology (APIC) were presented to the hospital wide task force:

1. Provide an appropriate infrastructure for preventing CAUTI.[1-3]
2. Perform surveillance for CAUTI if indicated on the basis of facility risk assessment or regulatory requirements.[1,3,5]
3. Provide education and training.[1,3,5]
4. Use appropriate technique for catheter insertion.[1,3,5]
5. Ensure appropriate management of indwelling catheters.[1,3,5]

The central goal for healthcare quality improvement was to maintain what was effective within the healthcare system while focusing on the areas necessitating change.[4] Therefore, it was determined that the daily CAUTI Maintenance Bundle Audit already utilized in the critical care departments would be disseminated throughout each of the hospital units, a new urinary catheter assessment tool containing indications for catheter discontinuance would be built into the electronic medical record (EMR), and staff education and training would be provided to solidify CAUTI prevention practices.[1-3]

Continuing Education

Education to introduce the CAUTI Maintenance Bundle Audit and daily huddle training became effective hospital wide in January 2015. The following catheter maintenance practices recommended for CAUTI prevention by the HICPAC were reinforced to staff as a part of the standard assessment for those patients with a urinary catheter:

1. The catheter is secured in a position that is comfortable for the patient.[1,5]
2. The catheter is securely attached to the closed drainage system.[1,3,5]
3. The collection bag is maintained at a level below the patient's bladder.[1,3,5]
4. The collection bag is never in contact with the floor.[1,5]
5. The catheter tubing is not kinked and unobstructed flow of urine is maintained.[1,3,5]
6. Daily personal hygiene should be managed using soap and water daily.[1,5]
7. The patient meets appropriate indications for urinary catheter need.[1,5]

To reinforce the importance of appropriate urinary catheter insertion, the infection prevention team and clinical nurse specialists identified the need for all nursing staff to perform a return demonstration using aseptic technique as part of the annual skills day

validation. It is believed that CAUTI is among those hospital-acquired infections intended to show improvement in the reduced number of reported cases, as there is evidence to suggest that over 50% of these infections are preventable.[1,5]

In April 2015, the evidence-based urinary catheter assessment tool was implemented electronically hospital wide. Staff completed a mandatory electronic education module to introduce the Centers for Disease Control and Prevention recommended guidelines for urinary catheters to only be inserted for the following indications:

1. Urinary retention or bladder outlet obstruction.[1,2]
2. Accurate urinary output measurement (strict intake and output).[1,2]
3. Perioperative use for selected surgical procedures.[1,2]
4. Assist in healing of open sacral or perineal wounds.[1,2]
5. Improve comfort for end of life patients.[1,2]

Once inserted, daily assessment to promptly remove an indwelling catheter should become a top priority.[1,3] A urinary catheter removal assessment tool built into the EMR allowing nursing staff every shift to promptly utilize a charting module. The urinary catheter assessment tool requires the nurse to complete the removal criteria electronically as part of the shift assessment for all patients with catheter. A nursing task would fire to discontinue the urinary catheter if all of the following criteria were appropriately met:

- The patient is awake, alert, and oriented.[2,3]
- The patient was incontinent prior to urinary catheter insertion.[2,3]
- Post-surgical procedure, the patient is able to use the bedpan/commode.[2,3]
- There is no order for strict intake and output monitoring.[2,3]
- The patient is eight hours post-epidural catheter removal/not applicable.[2,3]

Checking off the appropriate boxes and launching the task took nursing staff to the documentation section for urinary catheters. The nurse documents the indwelling catheter has been discontinued and the amount of urine left in the collection bag. If the aforementioned criteria are not met, the nurse documented the indication for indwelling catheter continuance in the EMR. The nurse continued to monitor the patient and follow the adult inpatient care standard algorithm for bladder scanning and intermittent catheterization for inability to void.

Overall Benefits

Initiating a urinary catheter assessment tool that would reduce the number of CAUTIs by decreasing device utilization, but also would dramatically transform the overall culture on patient safety is key to improving patient outcomes.[3] Restructuring the organization to adopt an EMR urinary catheter assessment tool will improve the quality of care delivery and reduce healthcare costs related to CAUTI. Nursing staff plays a pivotal role in implementing structured care standards that involve appropriately assessing the need for catheterization, insertion and removal, as well as urinary catheter maintenance.[3]

The role of nursing staff in the decision to remove a patient's urinary catheter when indicated and provide ongoing care should not be underestimated. The significance of considering the alternative to urinary catheter use such as intermittent straight catheterization with the aid of bladder scanning or external catheters for male patients cannot be overstated.[1,2] Implementing a urinary catheter assessment tool electronically gives nurses increased accountability for maintaining urinary catheters only when truly

warranted. Patient care outcomes and prevention of infection as a safety measure is the responsibility every healthcare professional.[2]

Outcome Measures

By increasing staff awareness of the HICPAC and CDC urinary catheter insertion guidelines and implementing a new electronic urinary catheter assessment tool hospital wide, the goal to reduce the number of CAUTIs by preventing the unnecessary insertion of catheters was met. Beginning January 2015, the baseline hospital wide performance device utilization ratio (DUR) for all inpatient care units was 0.45. One-month post urinary catheter assessment tool intervention, a 6% reduction and a current year-to-date catheter DUR rate of 0.40 was observed.

Efforts to sustain improvements in the areas of infection prevention and patient health outcomes will continue as demonstrated by monitoring DUR rates and observing a decrease in the number of CAUTIs. Reducing the number of urinary catheters utilized hospital wide has been identified as one method in which to eliminate CAUTI in the acute care patient. Dissemination of current healthcare practices and clinical guidelines that have proven to be invaluable to quality care and patient safety is imminent. Introducing evidence-based prevention strategies and empowering nurses to be facilitators of change will increase the quality of care and safety provided to patients throughout the organization.[3]

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APPENDIX A. STATEMENT OF ORIGINAL WORK

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Established in the Policy are the expectations for original work, rationale for the policy, definition of terms that pertain to academic honesty and original work, and disciplinary consequences of academic dishonesty. Also stated in the Policy is the expectation that learners will follow APA rules for citing another person's ideas or works.

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> Learners are expected to be the sole authors of their work and to acknowledge the authorship of others' work through proper citation and reference. Use of another person's ideas, including another learner's, without proper reference or citation constitutes plagiarism and academic dishonesty and is prohibited conduct. (p. 1)
>
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I attest that this dissertation or capstone project is my own work. Where I have used the ideas or words of others, I have paraphrased, summarized, or used direct quotes following the guidelines set forth in the APA *Publication Manual*.

Learner name and date	Chemain Gudino	8/15/15
Mentor name and school	Dr. JoAnn Manty – Capella University	8/15/15