The indwelling urinary (Foley®) catheter is a widely utilized device in the modern hospital environment in the United States. Under certain established medical conditions, these devices serve as a valuable tool in patient care. However, many indwelling urinary catheters are either placed inappropriately or are left in place longer than their intended use. This article describes a quality improvement project undertaken at the University of North Carolina Healthcare, Memorial Hospital, 8 Bed Tower Nursing Unit that developed and implemented a nurse-driven protocol to manage some of the risks associated with the use of these devices. The hospital team involved in this project was able to decrease the overall prevalence of indwelling urinary catheters from 24% to 17%.

Key Words: Foley catheter, catheter-associated urinary tract infection (CAUTI), nursing protocol.
for five days or more (Tambyah, Halvorson, & Maki, 1999). Although most cases of bacteriuria are asymptomatic and resolve spontaneously once the catheter is removed, Warren (1997) noted that as many as 30% of patients with catheter-associated bacteriuria will develop symptom-related urinary tract infections requiring treatment. Additionally, the most clinically important adverse outcome associated with bacteriuria is urinary tract-related bacteremia. Bacteremia, or sepsis, is a highly morbid and costly complication associated with hospitalization and can increase hospital length of stay (Saint & Lipsky, 1999). Use of the indwelling urinary catheter has been considered a “one point restraint;” akin to wrist restraints, the urinary catheter may act as a tether to the bed and is associated with impaired mobility, pain, and loss of dignity (Saint, Lipsky, & Goold, 2002).

Although various technologies have been employed to reduce the risks and associated complications of indwelling urinary catheters (such as bladder irrigation and antibiotic-coated catheters), experts agree that placement of these devices only in patients meeting established criteria as well as their removal will prevent both bacteriuria and other unfavorable conditions associated with their use (Saint & Lipsky, 1999; Topal et al., 2005).

Method

Cognizant of the abundance of literature on the risks of indwelling urinary catheters and an appreciation that patient safety is an issue whereby nurses could make a significant impact, a combined effort between staff nurses, a nurse manager, a nurse educator, a nurse practitioner, the medicine service manager, and an attending physician at the University of North Carolina (UNC) Healthcare, Memorial Hospital, 8 Bed Tower convened in 2006. Their objective was to develop a quality improvement program to address the problem of the prolonged and unnecessary placement of indwelling urinary catheters.

The 8 Bed Tower Unit at UNC is unique because it houses the Acute Care for the Elderly (ACE) unit and provides nursing care for general medicine patients admitted to the hospital. Older adults are particularly vulnerable because they incur a much higher risk of complications associated with their hospital stay as compared to younger patients (Creditor, 1993). Therefore, the authors set out to reduce hospital-acquired urinary tract infections and reduce the prevalence of indwelling urinary catheters through a nurse-driven protocol.

Utilizing a quality improvement framework as a model to address the issue, the initial team collected data for one year to establish a baseline and then conducted a pilot intervention shortly thereafter. After a piloted intervention over a 5-month period, follow-up data were collected and reviewed. The collected data included the duration of indwelling urinary catheter placement as well as indication (or lack thereof) for the catheter use in patients admitted to UNC Healthcare, Memorial Hospital, 8 Bed Tower. The baseline data showed that at any given time, approximately 24% of patients had a urinary catheter in place. Of these, more than 50% had no clear indication for continued use.

Intervention

Adapting a similar program that began at Bronson Methodist Hospital in Kalamazoo, MI, the team at UNC developed a nurse-driven protocol, Indwelling Urinary (Foley) Catheter Removal: Nursing Guidelines to Determine When Appropriate to Discontinue (see Figure 1). The protocol empowers primary registered nurses (RNs) to independently...
assess the continued need for the urinary catheter based on literature-supported indicators for its ongoing use. The RN evaluates the patient upon admission and at each change of shift. If a patient with a urinary catheter does not meet the pre-specified criteria for catheter use, the RN has the autonomy to remove the device without a physician order.

The final draft of the UNC protocol to remove indwelling urinary catheters was introduced to the adult medicine units in August 2006. Given the quality improvement methodology utilized in this project, approval from the Institutional Review Board (IRB) was not necessary.

The 3-month pilot project was initiated shortly after formal introduction of the new urinary catheter policy beginning in August and ending in October 2006. In an effort to integrate the protocol into bedside nursing care while addressing any concerns that the primary nurse had with a new protocol and assisting in the decision making process, the pilot project entailed weekly “Foley Rounds” on 8 Bed Tower. These rounds involved the nurse practitioner, nurse manager, and primary nurse; each morning, every patient on the unit received a brief visit at the bedside to check for an indwelling urinary catheter. If one was in place, the team met to review the clinical indications for placement of the device in that particular patient. As per the protocol, if the criteria were not met, the nurse practitioner and manager provided the initial support for the RN to remove the catheter without a physician order. Currently, the team performs monthly “spot” checks on all patients on the unit as an ongoing quality assurance measure.

Results

In evaluation of the program, follow-up data were collected from October 2006 through February 2007. Over this period of time, the daily prevalence (number of patients with an indwelling urinary catheter on the unit divided by total number of patients on the unit) fell from 24% to 17%. Of the 17% who had an indwelling urinary catheter left in place, the vast majority met the strict clinical guidelines to justify their continued use. A recent prevalence follow up in April 2008 was conducted; indwelling urinary catheter use rate dropped to 16.33%, indicating ongoing effectiveness of the intervention.

Additionally, during the 5 months of follow up (October 2006 through February 2007), a total of only 5 urinary catheter-associated infections occurred. Similarly, baseline data collected from the previous January 2006 through May 2006 revealed 5 catheter-associated urinary tract infections.

Clinical Implications

Overall, anecdotal evidence suggests that the medical staff at UNC overwhelmingly supports the independence given to the nursing staff to discontinue a urinary catheter when needed. Physicians, especially those of the Geriatric Medicine Service, realize the risks associated with the ongoing and inappropriate use of indwelling urinary catheters and support the nurse’s effort to manage this risk independently. The protocol has been successfully implemented in all adult medicine inpatient units. Bladder management issues in surgical, pediatric, and obstetric patients are unique, and therefore, this protocol is not utilized on these services.

Discussion and Future Directions For Research

Through the development of a nurse-driven protocol, there was a reduction in the overall prevalence of indwelling urinary catheters. Due to the methodology of this study, measurable changes in functional status by decreasing the overall use of urinary catheters were not captured. This area may lend itself to a prospective controlled trial. Additionally, a reduction in the number of catheter-associated urinary tract infections was not shown. This may be the result of the already low number of catheter-associated infections found at baseline at the authors’ institution as well as patient-specific factors (such as comorbidity) that may confound the independent association of urinary catheters and urinary tract infections.

Future studies are needed to determine patient satisfaction and specific metrics of patient safety with the use of this nurse-driven protocol. Although literature and empiric evidence suggest that removal of indwelling urinary catheters promotes patient dignity and reduces discomfort, future studies will need to be designed to specifically answer these questions.

Conclusion

Given the success these researchers encountered with the indwelling urinary catheter protocol in an acute care setting, a similar study and eventual adaptation of this protocol could easily be implemented in the long-term care setting. Given continued concerns of inappropriate use of indwelling urinary catheters in these settings, as well as the autonomous nature nurses hold in the long-term care environment, an independent nursing protocol such as this should be well accepted by staff (specifically RNs) and medical directors alike. Additionally, long-term care facilities share similar concerns of nosocomial infections, and a reduction in the rate of indwelling urinary catheters may help these facilities make strides in infection control as well.

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