Prevention of Catheter Associated Urinary Tract Infections
In a Long-term Acute Care Hospital
by
Gail L. Jones DNP, RN, CNS
Background

- The overuse of the indwelling urinary catheter is a significant problem in all healthcare settings.
- Up to five million urinary catheters are placed annually in the United States.
- Estimates are that 12% to 16% of all hospitalized patients will receive an indwelling urethral catheter during their hospital stay with up to fifty percent of those patients not having an appropriate indication.
- The use of indwelling urethral catheters, while important and useful in certain clinical situations, can lead to patient discomfort, morbidity, and even mortality.
Significance

- Urinary Tract Infection
  - Most common hospital acquired infection, with 80% attributed to an indwelling urinary catheter (Saint and Chenowith, 2003)
- Urethral catheters can lead to patient discomfort, morbidity, and even mortality (Saint, 2000)
- Catheter Associated Urinary Tract Infections (CAUTI) can be reasonably prevented with the application of evidence-based prevention strategies (Institute for Healthcare Improvement, 2009, CDC, 2009)
- Each day the urinary catheter remains in place the risk of CAUTIs increases 5% per day (Elpern, Killeen, Ketchem, Wiley, Patel, and Lateef, 2009)
Background

- 25 bed Long term acute care (LTAC) facility
  - Opened new floor added 25 more beds
- High Observation Unit had 6 critical care beds
  - Medically complex care patients
  - Patients on vents
- Most patients admitted with foley catheters
- Average length of stay twenty-five days
  - 33 days during 12 week project
Purpose

- The purpose of this quality improvement project was to determine the effectiveness of implementing a catheter associated urinary tract infection (CAUTI) prevention program guided by best practice recommendations.
- The four best practice guidelines were recommended by the Center for Disease Control and Prevention and the Society of Healthcare Epidemiology Association.
- The quality improvement project was implemented to decrease the CAUTI rates and decrease length of indwelling catheter days.
Method

• In a quality improvement plan, 84 patients from a long term acute care hospital participated in best practice guidelines to prevent CAUTIs.
• The four best practice guidelines included: avoid unnecessary urinary catheters, insert urinary catheters using aseptic technique, maintain urinary catheters based on recommended guidelines, and review urinary catheter necessity daily and remove promptly.
• CAUTI rates and length of indwelling urinary catheter days were evaluated before and after implementation.
Indications for Usage

- **Appropriate Indications**
  - Urinary tract obstruction
  - Urinary retention
  - Frequent monitoring (every 1–2 hours) of urinary output required
  - Stage III or IV decubitus ulcers in incontinent patients
  - Comfort measures for palliative care
  - Neurogenic bladder
  - Urologic surgery
  - Output monitoring in the Intensive Care Units only

- **Inappropriate Indications**
  - Incontinence without any of the appropriate indications
  - Patient preference
  - Staff convenience
  - Frequent nonessential determination of urinary output
    - CDC, (2009), Institute for Healthcare Improvement (2009)
Theoretical Framework

- Iowa Model of Evidence-Based Practice
- Plan Do Study Act
- Institute of Medicine (IOM) Aims
- University of South Alabama DNP Model and Legend
Process - 12 Week Quality Improvement Plan

- Needs assessment
- Cost savings identified
- IRB approval
- Policies reviewed and updated
- Admission and hand-off forms modified
- Education of staff, patients/family
- Daily data collection forms developed
  - Daily surveillance form revised
- Approximately 85 patients participated
Results

• The results indicated significant improvement in outcomes after the implementation of the four evidence-based practices, both the average length of catheter days and CAUTI rates declined.

• After implementing the recommended guidelines, CAUTI rates declined significantly from a mean rate of 6.43/1000 patient days to a mean rate of 3.45/1000 and catheter days decreased 20% from 389 days/month to a mean of 306 days/month.
CAUTI Rate Outcome

Annual CAUTI Rates

- NALTH 2009: 4.87
- LTAC 2009: 6.43
- LTAC 2010: 3.54

Red: NALTH 2009
Brown: LTAC 2009
Beige: LTAC 2010
Final Recommendations

- Continue daily surveillance rounds with revision of the daily surveillance form to identify patients in the high observation unit
- Continue nursing assessment for appropriate need of catheter prior to insertion of foley catheter
- Continue utilization of the four recommended evidence-based practices
- Bridge the communication gap between nurse and physician in High Observation Unit
- Mesh quality management and infection control data collection
Sustainability

- Medicare/Medicaid reimbursement
- Continued nursing assessment for appropriate need prior to insertion of foley catheter
- Continued daily surveillance and maintenance rounds
- Potential positive outcomes
  - Decreased CAUTIs
  - Decreased patient discomfort
  - Decreased morbidity and mortality
- CAUTI quality improvement plan has been adopted as an ongoing process at the facility
Conclusion

• The positive outcomes supported implementing the four recommended evidence-based practices to reduce the CAUTI rates in a long term acute care hospital.

• The evidence-based practices guided the plan to reduce indwelling catheter usage, which reduced CAUTI rates.
References