



Prevention of Catheter Associated Urinary Tract Infections
In a Long-term Acute Care Hospital

by

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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, Ketchum, 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

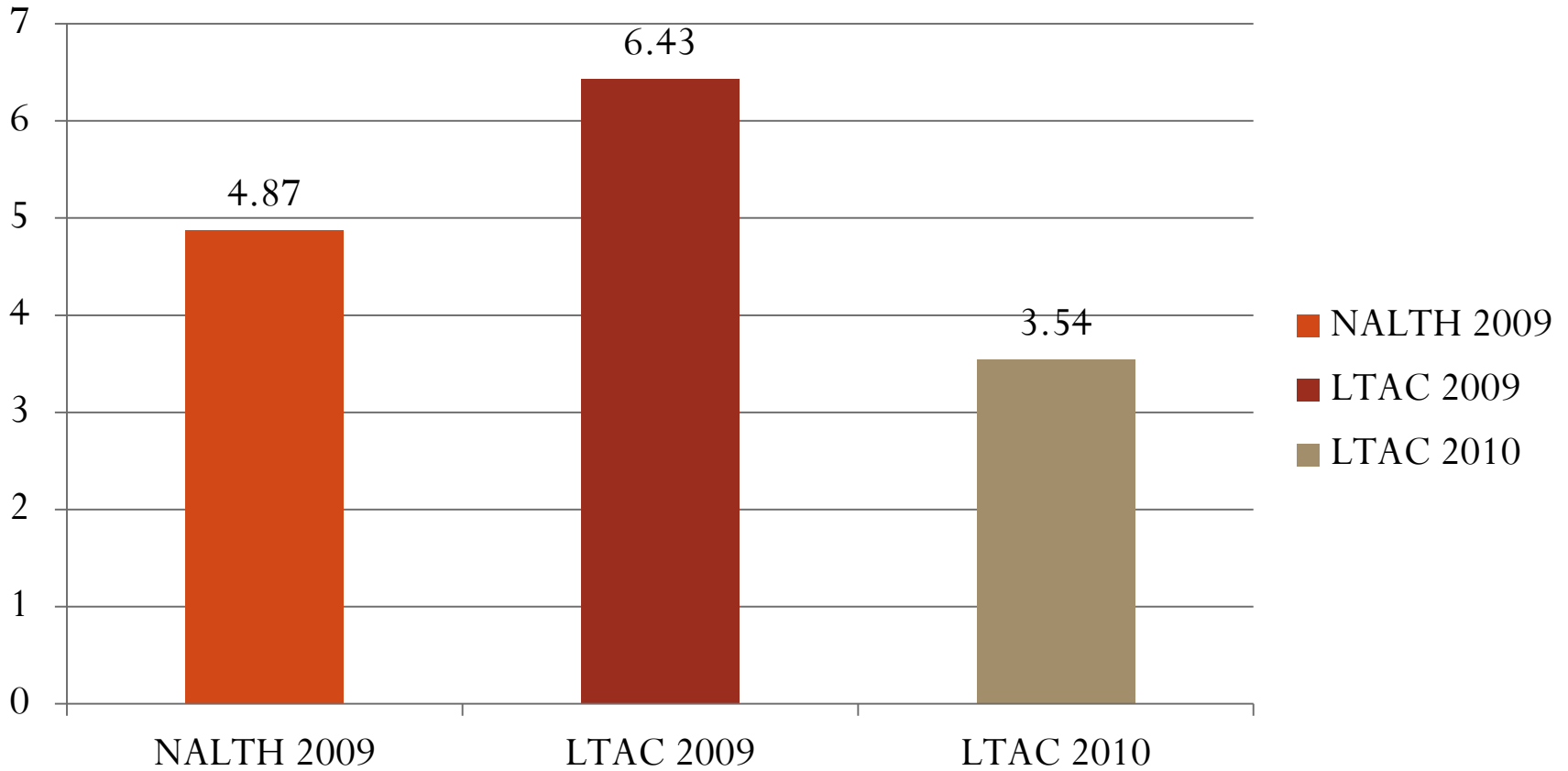
- **Needs assessment**
- **Cost savings identified**
- **IRB approval**
- **Policies reviewed and updated**
- **Admission and hand-off forms modified**
- **Education of staff, patients/family**
- **Daily data collection forms developed**
 - **Daily surveillance form revised**
- **Approximately 85 patients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

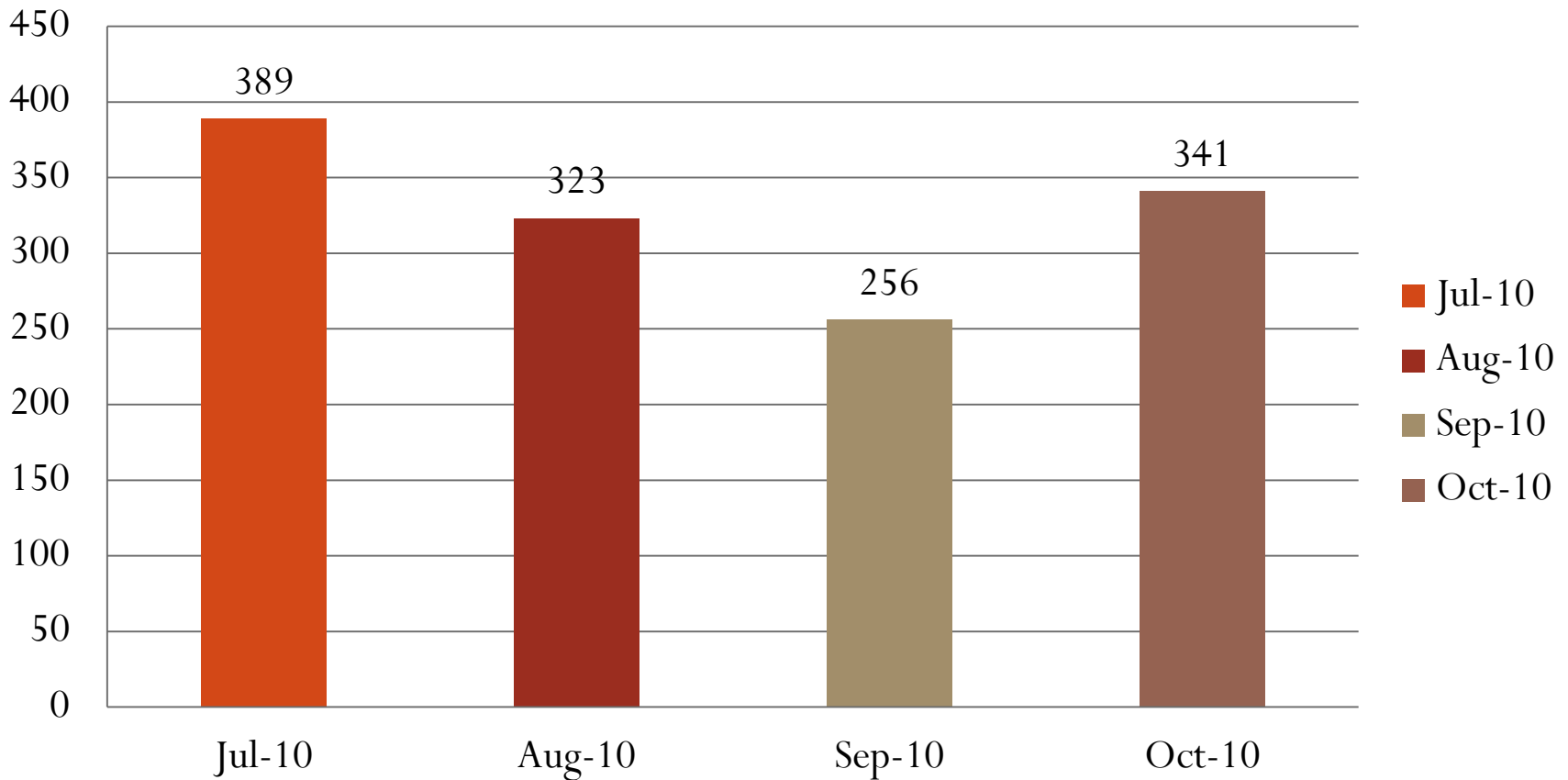
CAUTI Rate Outcome

Annual CAUTI Rates



LTAC Patient Catheter Days

Patient Catheter Days Per Month



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.**

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