Catheter-Associated Urinary Tract Infection (CAUTI) Prevention Strategy Using Education in an Intensive Care Unit (ICU)

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Introduction

Purpose To measure clinical impact of an evidence-based educational strategy on urinary tract infection (UTI) rates in a 900+ bed acute care facility located in a southwestern state in the United States (US).

Clinical Question Will a focus on staff education in the ICU on proper placement techniques, care, and early removal of urinary retention catheters reduce incidences of CAUTIs in an ICU setting?

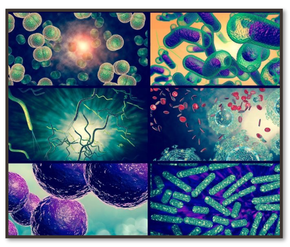
Background

Clinical Significance

- Hospital-acquired infections (HAIs) from indwelling urinary catheters are associated with increased morbidity, length of stay, and healthcare costs (WHO, 2016)
- UTIs make up roughly 40% of all HAIs during hospitalization with 80% being associated with use of urinary retention catheters (IHI, 2017; Quinn, 2015)
- HAIs from indwelling urinary catheters are associated with more than 113,000 deaths annually in the US (Ternavasio-de la Vega et al., 2016)

Literature Review

- 301-bed non-academic hospital demonstrated 50% reduction in CAUTIs one year after introducing a nurse-driven process designed to daily question the need for a urinary catheter through use of nursing assessment and targeted clinician education (Quinn, 2015)
- CAUTIs rose 3% from 2009 to 2012 in the US (Knudson, 2014)
- Data from 1,653 ICUs found that CAUTI prevention strategies were followed 27-67% of the time, thus informing the need for implementation and adherence measures for CAUTI prevention in this ICU (Knudson, 2014)



(Adobe Systems Incorporated, 2017)

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Methods

Design Descriptive study design

Setting CICU selected by infection prevention CAUTI team

Interventions Staff education focused on urinary catheter insertion using low fidelity simulation in December 2015.

Evidence-based educational program focused on:

- reduction of urinary catheters used
- implementation of insertion and maintenance best practices
- timely nursing assessment for need for removal

Sample Sampling at unit level included 100% of CICU staff nurses (N = 76)

Protocol Periodic rounding in CICU by infection prevention CAUTI team members to assess 100% of patients with indwelling urinary catheters.

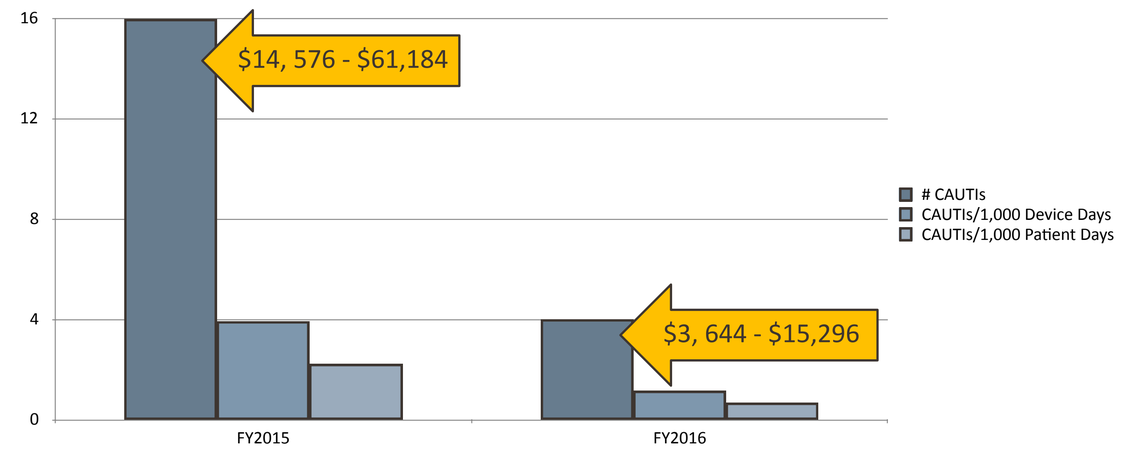
- ✓ checked for daily care compliance
- ✓ nurse assessment for necessity of continued urinary catheter placement
- ✓ proper urinary catheter securement devices in use
- ✓ appropriate positioning of closed drainage units

"Just in time" coaching and recognition was provided as needed.

Results

- Catheter induced infection rates decreased from 16 to 4 after intervention
- Cost estimates based on patients with symptomatic urinary tract infection (SUTI) and blood stream infection (BSI)
- Used per-patient inpatient cost estimates of SUTI ($911) & BSI ($3,824) respectively (Kennedy et al., 2013)

	Number of CAUTIs	CAUTIs per 1,000 Device Days	CAUTIs per 1,000 Patient Days
FY2015	16	3.91	2.22
FY2016	4	1.15	0.69



Discussion

- Regular use of urinary retention catheters in ICU settings worldwide place patients at increased risk for developing CAUTIs
- An infection prevention CAUTI team aided in increasing staff education and awareness of nurse-led prevention strategies
- Partnering with experts outside nursing units improved teamwork and communication across disciplines regarding care and use of retention catheters
- Incidence of improper care was reduced significantly with periodic rounding
- Evidence-based protocols designed to decrease CAUTIs may not capture point of care practices contributing to problem
- Collaboration with experts outside of the nursing unit decreased CAUTIs
- Our study findings were consistent with literature findings
- Project findings led to implementation across all medical-surgical and progressive care units in this institution

Conclusions

- With targeted evidence-based education for the nursing staff and routine rounding by infection prevention CAUTI team members, a reduction in CAUTIs have resulted in this ICU setting.
- Further research is recommended to fully demonstrate the impact of targeted evidence-based clinician education and nurse-led protocols on CAUTI rates in CICU settings.

Contact

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