

**Reduction of Urinary Catheter Utilization in an Adult Intensive Care:  
An ACCNS-AG Student Led Healthcare Systems Project  
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As a Clinical Nurse Specialist (CNS) student, a healthcare systems project is a keystone of our education. After undertaking a needs assessment in the clinical location, an adult ICU in a moderately sized suburban hospital in the Midwest, it was noted that about every other month there was a catheter-associated urinary tract infection (CAUTI) attributed to the intensive care unit (ICU).

Joint Commission Standards and the Centers for Medicare and Medicaid Services have stated goals for zero CAUTIs. The adult ICU also is striving for a zero CAUTI goal. Several factors are found to contribute to CAUTIs with days an IUC is in use having a high correlation. The purpose of this project was to reduce device utilization days for indwelling urinary catheters (IUCs) in an effort to reduce infection rates to zero.

Prior to implementation of interventions, staff nurses were surveyed, and charts were reviewed to examine current trends in IUC use. Much in line with data across adult ICUs, strict intake and output was the #1 indication even though urine output recording was not done hourly. In addition, several of the patients who had a strict intake and output indication listed did not require frequent changes in their care based on urine output data.

The implementation process included: education for staff nurses regarding indications for strict intake and output, use of the nurse-driven IUC removal protocol, and CAUTI risks; CNS rounds on clinical days to find appropriate patients for IUC removal protocol use, and discussions with the cardiovascular service opposed to nurse-driven protocol use. Device days and CAUTI rates were tracked by a designated infection prevention staff member.

After two weeks of education and CNS rounds, IUC usage dropped by two percent. The CAUTI rate remained constant and further follow up if the project had allowed would have been useful. Additionally, more dialogue between the cardiovascular surgery service that opposed nurse-driven protocols and the CNS to remove barriers to IUC removal could have been possible. The CNS student as able to compromise with the service and the rounding mid-level providers agreed to order IUC removal as early as clinically warranted.

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## Background Information

- Catheter associated urinary tract infections (CAUTIs) account for 32% of hospital acquired infections<sup>1</sup>
- 33% of CAUTIs occur in the intensive care unit<sup>2</sup>
- Duration of indwelling urinary catheters (IUC) use is a key risk for CAUTI<sup>4</sup>
- The Joint Commission requires "the implementation of evidence based practices to prevent (CAUTI)"<sup>5</sup>
- Strict intake/output measurement is the primary documented indication for use of IUC's<sup>3</sup>
- Unit data was consistent with these findings
  - Adult Intensive Care Unit (ICU) in a tertiary care facility located in the Midwest
  - 67% of order with strict intake/output as the indication
  - 9% of charts with intake/output charted hourly
  - 33% of charts with inconsistent fluid balances
  - 50% of hospital CAUTIs attributed to the ICU

## Project Goals

- Assess ICU nursing knowledge of IUC indications
- Define strict intake and output criteria
- Identify barriers in use of nurse-driven IUC removal protocol
- Decrease urinary catheter device utilization rate
- Zero CAUTI

## Design and Implementation

- Pre-intervention survey to analyze education of nursing staff and barriers to use of removal protocol (N=20)
- Plan education around survey results (Figure 1)
  - Posters with educational bullet points
  - One on one conversations with staff
- Reduce barriers identified in the survey results
  - Address lack of physician support
- Track IUC utilization on a monthly basis
- Track CAUTI occurrences on a monthly basis

Figure 1

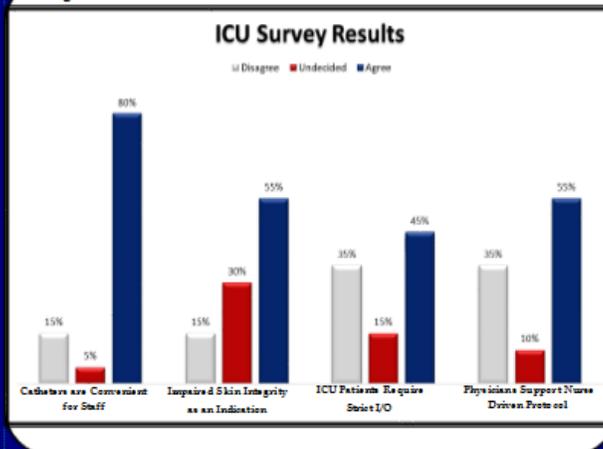
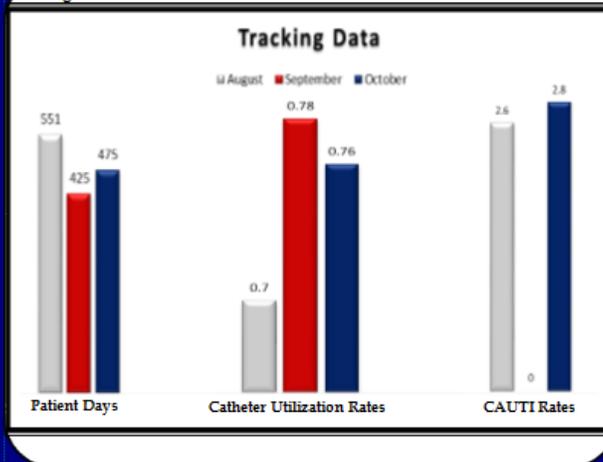


Figure 2



## Results

- Presented in Figure 2
- Device utilization decreased by 2%
  - Patient days increased
  - CAUTI rates unchanged after 1 month's data

## Discussion

- Prevention of CAUTI's is a Joint Commission Standard
- Education related to proper indications for IUC use contributes to reduced device utilization
- Barriers to nurse-driven IUC removal protocol
  - Actual lack of physician support
  - Project opened lines of communications
  - Some surgical services admitted to verbal reprimand of RN's who removed IUC's following the protocol without obtaining physician order
  - Critical nursing staffing shortage
  - Convenience of IUC's for nursing staff
  - Lack of available alternatives for urine collection on the unit

## Next Steps for CNS Practice

- A longer study period would be beneficial
- This project had severe time limitations
- Assist with physician acceptance of nurse-driven protocols
  - Advocacy for nursing practice within the facility
  - Support of the Chief Nursing Officer and the Medical Director was obtained
  - Encourage Medical Director to have crucial conversations with other physicians
- Additional infection prevention techniques when IUC's are indicated
  - Investigation into swab caps on sample ports
  - Policy for IUC exchange prior to obtaining cultures

## References

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## Acknowledgements

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