Reduction of CatheterAssociated Urinary Tract Infections in Neurocritical Care

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Introduction & Background

- Urinary tract infections are the 5th most common HAI in the United States (Center for Disease Control [CDC], 2021).
- Indwelling urinary catheters are the most common indwelling device in the acute setting, increasing daily risk of catheter associated urinary tract infections (CAUTI) by 3%-7% (CDC, 2021).
- Over 67% of hospitalized patients with urinary tract infections have an indwelling urinary catheter (Nicolle, 2014).
- CAUTI: A UTI where an indwelling catheter is in place more than two consecutive days.

CAUTI Rates Q1 2021:

- Provider discretion and loose interpretation of guidelines leads to inappropriate indwelling catheter placement (CDC, 2019).
- Indwelling urinary catheters are the most common indwelling device in the acute setting, increasing daily risk of catheter associated urinary tract infections (CAUTI) by 3%-7% (CDC, 2021).
- Estimated excess mortality rate: 0.036
- Prolonged immobility and neurogenic bladder are associated with many neurologic diagnoses, placing NCC patients vulnerable to CAUTI (Patel, et al., 2021).
- Disease Control (CDC), 2021)

Critical Care patients have a 5-10 fold increased risk of CAUTI compared to acute patients

- CAUTI: A UTI where an indwelling catheter is in place more than two consecutive days

Sample

- All patients admitted to the Neurocritical Care service as primary patients were included.
- Consult patients were not included in the control or intervention groups.

Purpose & Aims

This quality improvement project aimed at improving nursing knowledge and reducing indwelling catheter utilization, catheter days and CAUTI within Neurocritical Care.

Project Aims:
- Compare nursing knowledge and attitude of CAUTI precautions
- Decrease indwelling urinary catheter days
- Decrease indwelling urinary catheter utilization
- Decrease rate of positive urine culture

Methods

- Design: Pre- and post-intervention
- Setting: Surgical-Trauma Intensive Care Unit of a non-academic medical center
- Sample: Convenience sampling
- Time: Pre-intervention July 15-October 7, 2022; Intervention October 8-December 31, 2022
- Intervention: Nursing education and catheter rounds using an evidenced based CAUTI bundle including indication, securement device, fecal management system and perineal care.

Outcome Variables: Nursing knowledge and attitude based on Catheter Associated Urinary Tract Infections Control Measures Scale (CAUTICMS), indwelling catheter utilization, indwelling catheter days, Catheter Associated Urinary Tract Infections

Conclusion & Sustainability

- Nursing knowledge and attitude of CAUTI prevention was high during both pre- and post-survey analysis
- Statistically significant reduction of catheter days and catheter utilization
- Impact: Supply chain for straight catheter kits and external devices, replacement of bladder scanner
- Limitations: High nursing turnover, increased utilization of travel and float pool staff, overnight coverage
- Future directions: Analyze cost savings and impact on length of stay
- Dissemination: Neurocritical Care Society, International Stroke Conference, Society of Critical Care Medicine

Sustainability: Continues to be part of bi-weekly and daily rounding, additional dashboard metrics, yearly QI recognition

Results

Aim 1: Nursing Knowledge and Attitude

- Wilcoxon-Signed Rank Test
- 21 paired surveys

Aim 2: Indwelling Urinary Catheter Days

- Mann-Whitney U Test
- Mean catheter days totaled 1.2(2.6)

Aim 3: Indwelling Urinary Catheter Utilization

- Chi-square goodness-of-fit
- Control 38% Intervention 27%

- *analyzed via t-test

References

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