

Interventions of Catheter-Associated Urinary Tract Infection's (CAUTI)

Literature Review

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## **Interventions of Catheter-Associated Urinary Tract Infection's (CAUTI)**

The Center for Disease Control (CDC) refers to Catheter-associated Urinary Tract Infections (CAUTI) as the most common type of healthcare-associated infection. Approximately 75% of hospital conditions are related to urinary catheters (Centers for Disease Control and Prevention, 2015). The risk for CAUTI increases with prolonged use of urinary catheters (Centers for Disease Control and Prevention, 2015). Therefore, you will want to remove the catheters as soon as possible to reduce the risk of CAUTI. A swift initiative needs to be taken by healthcare professionals to stop the increasing rates of CAUTI. With education and intervention of infection prevention, healthcare professionals will hopefully see a decrease in Catheter-Associated Urinary Tract Infections.

### **Quantitative Results of**

#### **a National Intervention to Prevent Hospital-Acquired Catheter-Associated Urinary Tract Infection**

This study's objective was to measure the rates of CAUTI and urinary catheter device the utilization ratio of 387 participating hospitals from 23 states and the District of Columbia, 361 of which provided CAUTI data (Meddings et al., 2019a). The researchers put into place a multimodal intervention tool to reduce the risk of CAUTI. The researchers used a practice change assessment tool to identify infection prevention and control. Other interventions used include web-based modules for onboarding, monthly webinars, and feedback (Meddings et al., 2019a).

#### **Key Points**

"Improving implementation of infection prevention and control (IPC) efforts were prioritized by providing and coaching on the use of IPC assessment tools, providing to CDC's

targeted assessment prevention (TAP) strategy resources, and offering technical and implementation assistance to improve IPC practices" (Meddings et al., 2019a, para. 14). Improving the implementation of IPC was the priority in participating in hospitals. Interventions were available to all participating hospitals. The two main assessment tools used were the Infection Control Assessment and Response (ICAR) and the Practice Change Assessment. They examine urinary catheter insertion and urinary catheter training (Meddings et al., 2019a). The routine then focused on infection prevention's main aspects to address the change needed in hospital culture (Meddings et al., 2019a).

### **Assumptions**

The primary assumption underlying the author's thinking is that the CAUTI rate will decrease by implementing these interventions. There were a lot of variables in this study. Some of them include staff turnover, leadership types, variation across infection prevention and control measures, and less effective laboratory diagnostic teams. These factors lead to not having enough evidence to support the interventions to prevent CAUTI. We should take away from this study that even with multimodal interventions in place, there isn't a significant decrease in CAUTI. With that said, we can always educate, learn, and implement infection control measures to get those numbers to make a jump in the right direction.

### **Deficit/Conclusion**

After implementing all of these interventions, no substantial quantitative improvements in CAUTI were present. The study provided a lot of educational resources in preventing associated hospital infections and addressing any knowledge deficits. The interventions implemented did not provide enough evidence to support the initial claim that by putting these interventions in place, the CAUTI rate will decrease.

## **A Tiered Approach for Preventing Catheter-Associated Urinary Tract Infections**

The CDC funded States Targeting Reduction in Infections via Engagement (STRIVE) initiative to help hospitals who are still struggling with CAUTI and other hospital-associated infections. Meddings et al. (2019b) stated that "Although a meta-analysis of the published peer-reviewed literature indicates that up to approximately 50% of CAUTIs can be prevented, many hospitals have had less success" (Meddings et al., 2019b, para. 1). The STRIVE program has engaged many state organizations to facilitate and implement a curriculum to prevent hospital-associated infections. The curriculum focuses on interventions to reduce CAUTI, and the difficulty for healthcare workers to choose among the interventions (Meddings et al., 2019b). The research team applied the tiered approach to prioritize CAUTI prevention interventions for hospitals participating in STRIVE (Meddings et al., 2019b).

### **Key Points**

The tiers' outline was developed regarding the care for acute care patients and can also apply to long-term urinary catheter needs. In the first tier, there are five subcategories (1A-1E). This tier where the care team will standardize supplies, procedures, and processes. In tier 1A, professionals will place the urinary catheter only for the right reasons. Tier 1B encourages the use of alternatives to the indwelling catheter. Tier 1C includes the proper sterile (aseptic) technique. Tier 1D wants the care team to take out the urinary catheter when it is no longer needed. Lastly, tier 1D recommends getting a urine culture only if symptoms of a UTI are present. (Meddings et al., 2019b)

The second tier goes over enhanced practices. If the CAUTI rates stay elevated after the first tier, you will move on to the second tier. This tier also contains five sections (2A-2E). Tier 2A includes performing assessments with CAUTI guide to patient safety (GPS) and the targeted

assessment for prevention (TAP) strategy. Tier 2B initiates CAUTI rounds with targeted education of appropriate use of the urinary catheter. Tier 2C makes sure that the management team or frontline staff get feedback about infection and catheter use in real-time. Tier 2D includes observing and documenting the competency of catheter insertion. Including education and observed behavior. Tier 2E is the last step to the tier system and includes performing a full analysis of the infections' root cause. (Meddings et al., 2019b). The team will not need to move forward in the tiers if the CAUTI rates have lowered. Each tier is a next step or level up approach to ensure preventative measures are in place for urinary catheter care.

### **Assumptions**

With the tiers in place and an organized way to prioritize CAUTI interventions, the team can assume that the CAUTI rates will substantially decrease with each step taken in the tiers. "Tier 1 consists of standardizing basic supplies, procedures, and processes to address steps to disrupt the life cycle of urinary catheters and avoiding urine culture ordering for asymptomatic patients. Tier 2 begins with a self-administered needs assessment survey to highlight tier 1 interventions that may need better implementation, as well as to select and prioritize among tier 2 enhanced practices and implement those that are more time- and resource-intensive" (Meddings et al., 2019b, para. 30)

### **Deficit/Conclusion**

The hospitals implemented all of the tier 1 interventions and review and audit compliance with the tier 1 measures. If the CAUTI rates remained elevated despite standardizing supplies, procedures, and processes, hospitals proceeded to the tier 2 interventions as instructed. This practice was studied and supported by a decrease in CAUTI and is a valuable part of the

Comprehensive Unit-based Safety Program approach to healthcare-associated infection prevention (Meddings et al., 2019b)

**Catheter-associated urinary tract infection (CAUTI) prevention and nurses' checklist documentation of their indwelling catheter management practices**

This study aimed to look into the catheter management practices demonstrated by nurses through audits and a self-administered indwelling catheter checklist. As part of mixed-methods research that investigated the impact of CAUTI knowledge and management in nurses. The implementation of a standardized clinical list by nurses will be evaluated and compared to the CAUTI rates.

**Key Points**

There were four components of catheter care outlined in the checklist. The details outlined included minimizing inappropriate catheter use, aseptic insertion technique, catheter maintenance, and ongoing review and evaluation of necessity.

"Fifty nurses completed 175 checklists. Thirty-one percent (n=54) showed that all evidence-based practices in the care bundle were performed and documented by the nurses. The remaining checklists indicated that nurses did not perform some components of the bundle of care for unknown reasons" (Hernandez et al., 2019, para 1). No significant data was correlating the incomplete checklists to CAUTI prevention efforts.

**Assumptions**

It was unknown whether or not the incomplete checklists were a reflection of poor documentation or poor practice. The Catheter management practices impacted CAUTI prevention efforts when performed consistently as a bundle of care across all four checklist components. The recommended actions to further affects CAUTI were to provide regular in-

service education, complete the necessary checklist documentations, and regular auditing of the list. (Hernandez et al., 2019)

### **Deficit/Conclusion**

Completing the four components in the checklist will help with the overall management of CAUTI. There is no definite correlation between the decrease in CAUTI rates and the full completion of the list, but there was a correlation in nurse management practices. Poor nursing practice can lead to an increased occurrence of CAUTI's, and in-service education is the recommendation to account for this. (Hernandez et al., 2019)

### **Conclusion**

Overall, putting a set of guidelines in place will prevent the rise of CAUTI rates in many ways. Implementing the STRIVE program put in place by the CDC has helped standardize the urinary catheter insertion procedure and infection prevention measures. The intervention priorities put in place by Meddings et al. (2019b) in the tiered system approach will help the multidisciplinary teams follow an organized procedure for catheter care and infection prevention. Hernandez et al. (2019) put a similar measure into place with the 4-step checklist covering many of the same material as the tiered system. It is tough to measure CAUTI rates across multiple states with no standards for practices across any of the hospital systems, Meddings et al. (2019a) ran into this in the first article. There was no enough evidence to say that the interventions where what lowered to CAUTI rates. In conclusion, providing a set of procedures, priorities, and education to the staff will affect the amount of CAUTI's. Having some standard of practice across the board will make it more measurable to see the ebb and flow of the overall CAUTI rate.

## References

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