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Using Intervention Bundles to Reduce the Rate of Catheter-Associated Urinary Tract Infections in Acute Care Settings

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Purpose

- The purpose of this study is to analyze the effectiveness of intervention bundles against catheter associated urinary tract infections in an acute care setting.



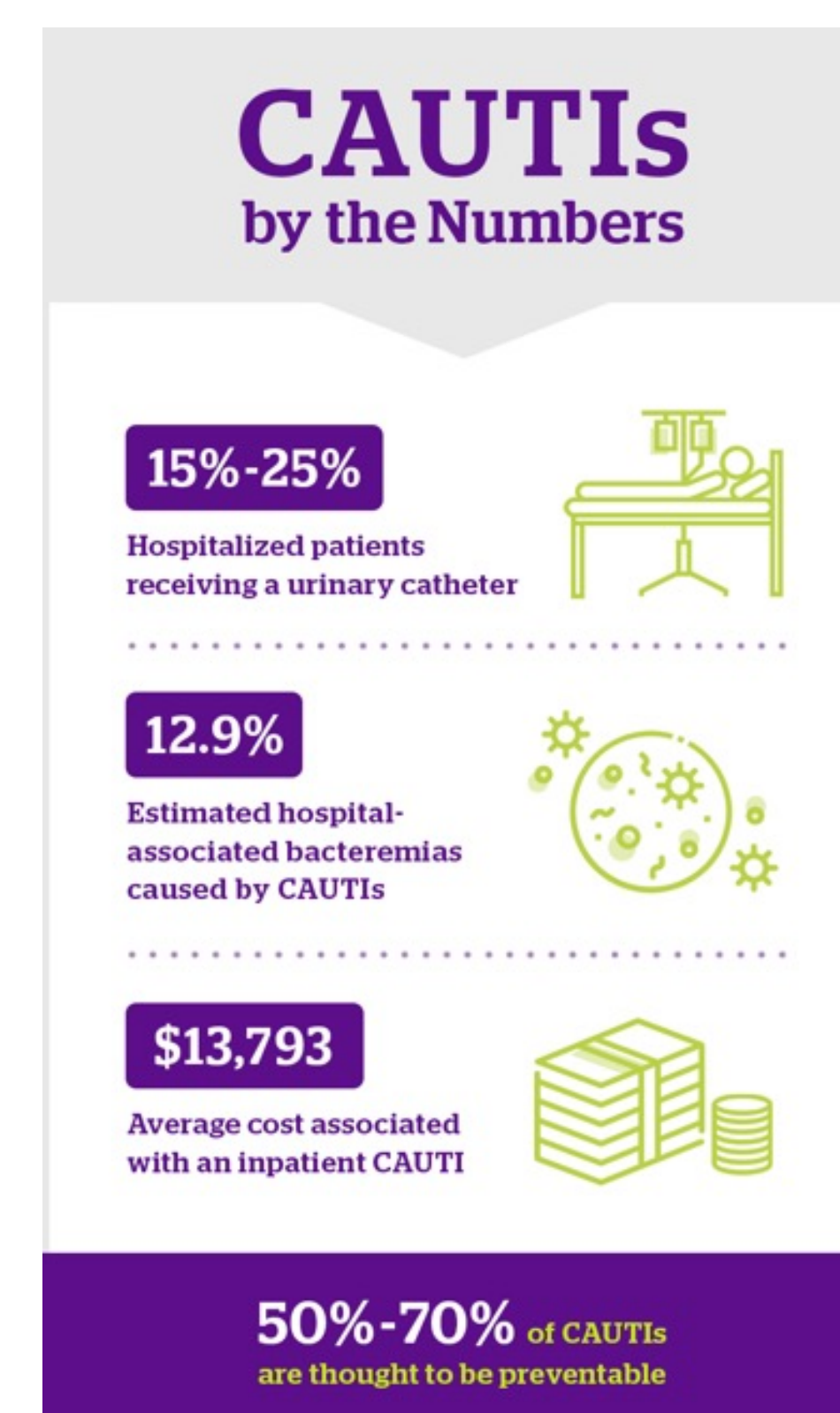
Background

- A catheter associated urinary tract infection (CAUTI) occurs when bacteria enter and infect the urinary tract through a urinary catheter.
- A urinary catheter is a flexible tube that runs through the urethra and into the bladder, allowing the drainage of urine into a collection bag.
- About 560,000 patients develop CAUTI per year
- More than 13,000 deaths each year are associated with urinary tract infections
- Urinary tract infections can lead to complications such as sepsis and endocarditis
- CAUTIs increase healthcare costs as well as morbidity and mortality
- Though there is extensive research on CAUTI, there is a gap in knowledge about how well a bundled approach can decrease the incidence of CAUTI.



Literature Review

- Bundles
 - Common interventions among literatures for the bundle include routine catheter care and hygiene
 - Other interventions include keeping an unobstructed urine flow with no kinks or dependent loops
 - Evaluating the need for discontinuation daily is a common intervention seen among the literatures
- Cost
 - The direct medical cost of CAUTIs in the U.S. is \$131 million each year (Elkbuli et al., 2018)
 - A recent study shows a reduction of more than \$55,000 with a use of a bundled approach (Leontie & Delawder, 2021)
- Patient Outcomes
 - Many studies showed a significant reduction rate in CAUTIs after the use of bundled interventions
 - In a study by Elkbuli et al. there was an 80% reduction in CAUTIs (2018)
 - A study by Sampathkumar et al. showed a 70% reduction rate of CAUTI after bundled interventions (2016)
 - Reducing CAUTI rates decreases morbidity and mortality and reduces the risk for complications such as sepsis and endocarditis



Implications

- Some bundled interventions include proper and routine perineal care, using strict aseptic technique upon insertion, and evaluating the need for catheter use daily
- These interventions should be studied individually to evaluate their effectiveness
- Some recommendations for further research would be using a larger sample size for a longer duration

Methods

- Design: This research design is quantitative, quasi-experimental, and retrospective.
- Participants: Participants must be over the age of 18. They must be in an inpatient acute care setting with an indwelling catheter to be part of the analysis.
- Procedures: Prior to implementing the intervention bundle, nurses will be educated on what elements are involved in the bundle and their importance. Patient's urine culture and white blood cell count will be analyzed prior to, during, and after the intervention. Nurses will be required to implement the bundle once a shift. CAUTIs will be counted prior to and after the intervention bundle. Charts will be reviewed to analyze nurse documentation.
- Measurement: Patient's charts will be pulled among a 4-week span. The study will have two consecutive four-month periods, one for pre-intervention and another for post-intervention.
- Interventions: The bundle will consist of evaluating the need for catheter use daily, providing routine perineal and catheter care, keeping the drainage bag below the bladder and above the floor, keeping the catheter secured with no kinks or dependent loops, and using aseptic technique upon insertion.



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