

Reduction in Health Care Facility Onset Catheter-Associated Urinary Tract Infections: A Resident-Led Quality Improvement Initiative



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Background

- Hospital-acquired catheter-associated urinary tract infection (CAUTI) was estimated to cause 19,700 cases in 2020 across the United States per the Centers for Disease Control and Prevention (CDC).
- While this is a 25% decrease in reported incidence rates since 2015, ad-hoc changes in care practices and limitations of surveillance definitions brought on by the giant burden of COVID-19 on the healthcare system possibly resulted in underreporting of CAUTIs.
- CAUTIs incur substantial cost to health care system with an average \$750 associated increase in healthcare costs per hospitalization

Defining CAUTI

CDC surveillance CAUTI criteria:

- A UTI where an indwelling urinary catheter was in place for more than two consecutive days in an inpatient location on the date of event, with day of device placement being Day 1*, January 2022 Device-associated Module UTI 7 - 3

AND

- An indwelling urinary catheter was in place on the date of event or the day before. If an indwelling urinary catheter was in place for more than two consecutive days in an inpatient location and then removed, the date of event for the UTI must be the day of device discontinuation or the next day for the UTI to be catheter-associated.

Objective

To identify and address CAUTI-related care gaps at our local hospital using Plan-Do-Study-Act (PDSA) quality improvement model.

Methodology

Study design: PDSA cycle model carried out by a multidisciplinary, resident-led team

Study population:

- All hospitalized patients admitted to a 290-bed tertiary, community hospital in the Detroit metropolitan area from January 1, 2021 - March 31, 2022
- All patients ≥ 18 years
- Pregnant patients were excluded from this study

Data source:

- Internal infection control database
- Electronic medical records (EMR)

Data parameters:

- Patient characteristics (age, gender, etc.)
- Clinical presentation, including urinary symptoms at time of admission
- Urinary catheter indications and duration
- Laboratory data including urine studies
- Antibiotic use
- ID consultation
- UTI complications (bacteremia, obstruction, pyelonephritis, abscess, etc.)

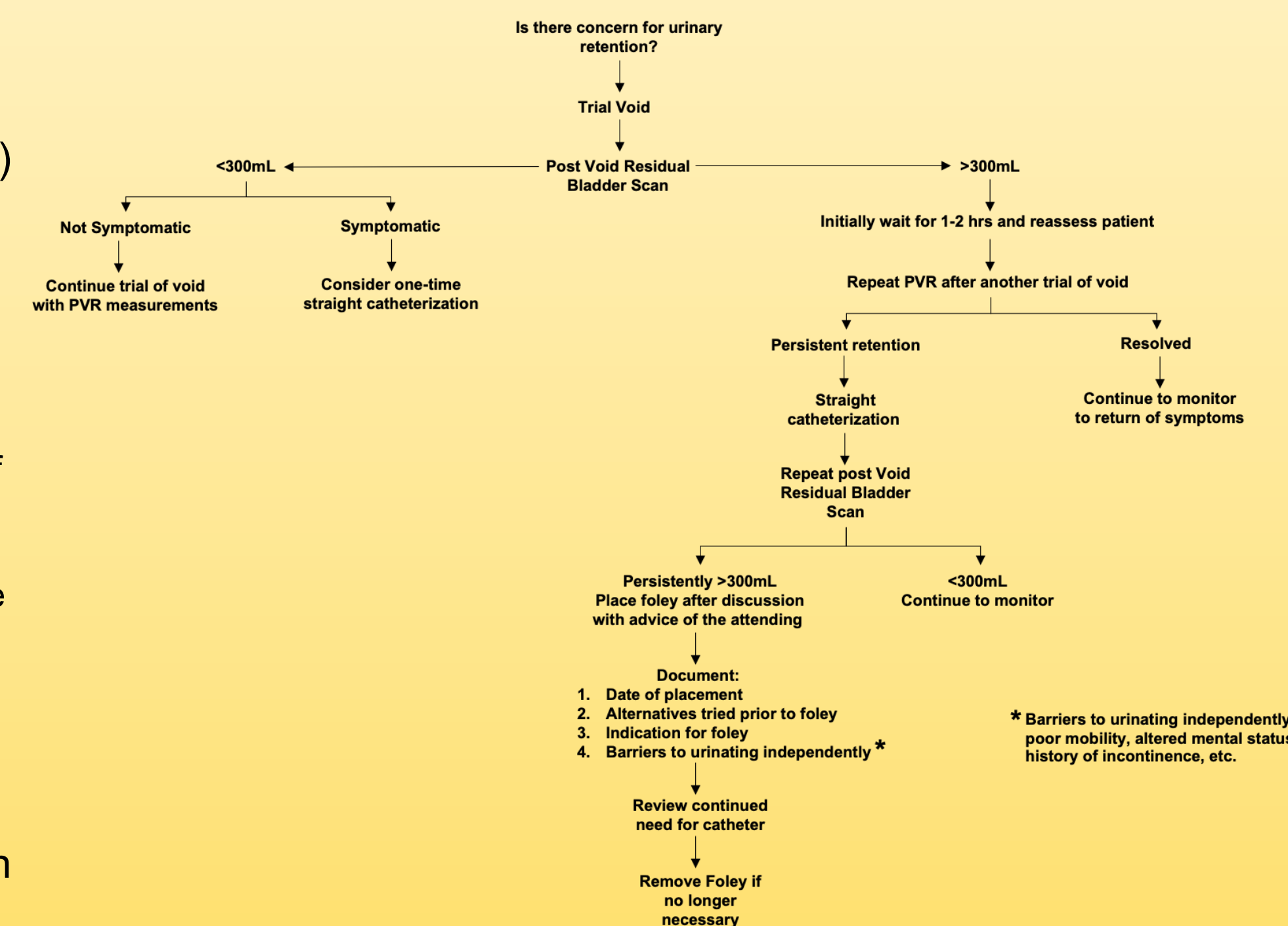
Outcomes:

- CAUTI incidence rates
- Foley parameter documentation rates (indications as well as insertion and removal dates)

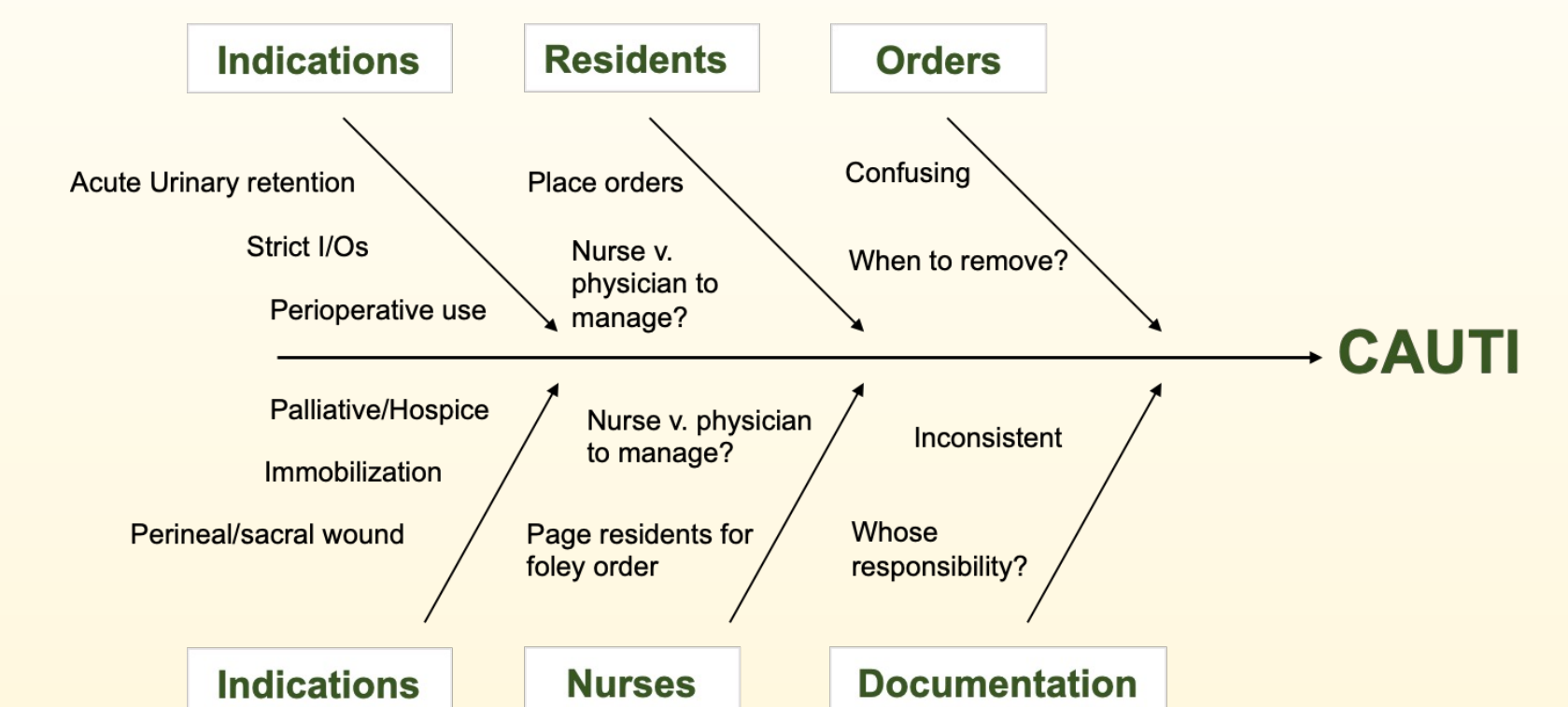
Statistical analysis: Simple descriptive statistics

PDSA Cycle 1

- Baseline data: In a 290-bed tertiary, community hospital in the Detroit metropolitan area, there was a 200% increase CAUTIs from 2020 (5 CAUTIs) to 2021(16 CAUTIs).
- The intervention bundle included:
 1. Provider (including physician and RN) education
 2. Design and implementation of an appropriate urinary catheter practice algorithm
 3. Expert review of positive urine cultures and CAUTI cases.
- Post-implementation of the intervention bundle from January to March 2022 resulted in a 75% reduction in CAUTI incidence (1 CAUTI flagged).



Root Cause Analysis



Conclusion

- A targeted intervention bundle improved CAUTI incidence by reducing inappropriate urinary catheter insertion and prolonged removal.
- Ongoing local initiatives focused on hospital-acquired infections, such as this one, are paramount to the persistent optimization of infection prevention despite national trends.

References

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Disclosures

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