Role of Urine Culture Hard Stop in Reducing Catheter-associated Urinary Tract Infections

#2031

John Cherian[1], Robert Tibbetts[1], Paula Robinson[1], Tarlisha Holsey[1], George J. Alangaden MD[1,2], Geehan Suleyman[1,2]

[1]Henry Ford Health, Detroit, Michigan; [2]Wayne State University School of Medicine

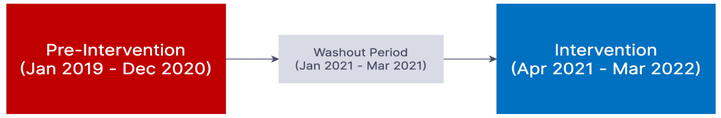
John Cherian, MD
2799 W. Grand Blvd
Detroit, MII 48202
jcheria2@hfhs.org

Background

- Catheter-associated urinary tract infection (CAUTI) is a commonly reported healthcare-associated infection (HAI)
- However, asymptomatic bacteriuria is common in patients with indwelling urinary catheters (IUC) and leads to CAUTI overdiagnosis
  - In 2020, 95% of our CAUTIs were due to unnecessary culturing
- In March 2021, we implemented a urine culture (UC) hard stop (Figure 1) in the electronic medical record (EMR) that fired 24 hours after admission in patients with IUC >1 calendar day and until 4 days after IUC removal
- Our objective was to assess the effectiveness of a "hard stop" in reducing inappropriate UCs and its impact on CAUTI rates

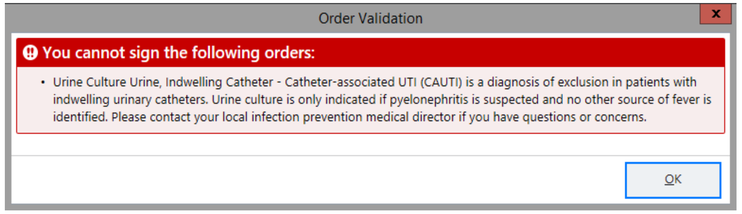
Methods

- *Study Design*: Pre-post quasi-experimental retrospective study comparing CAUTI rate per 1,000 patient days, UC utilization rate per 100 patient days, Standardized Utilization Ratio (SUR) and Standardized Infection Ratio (SIR) in a 5-hospital healthcare system in Southeast Michigan



- Medical Director of Infection Prevention and Control had the ability to override the hard stop when indicated after reviewing the chart
  - Education and management recommendations were provided in real-time
- Outcomes were prospectively monitored for 30 days in patients UC was deemed unnecessary at the 887-bed flagship hospital

Figure 1: Urine Culture Ordering Hard Stop

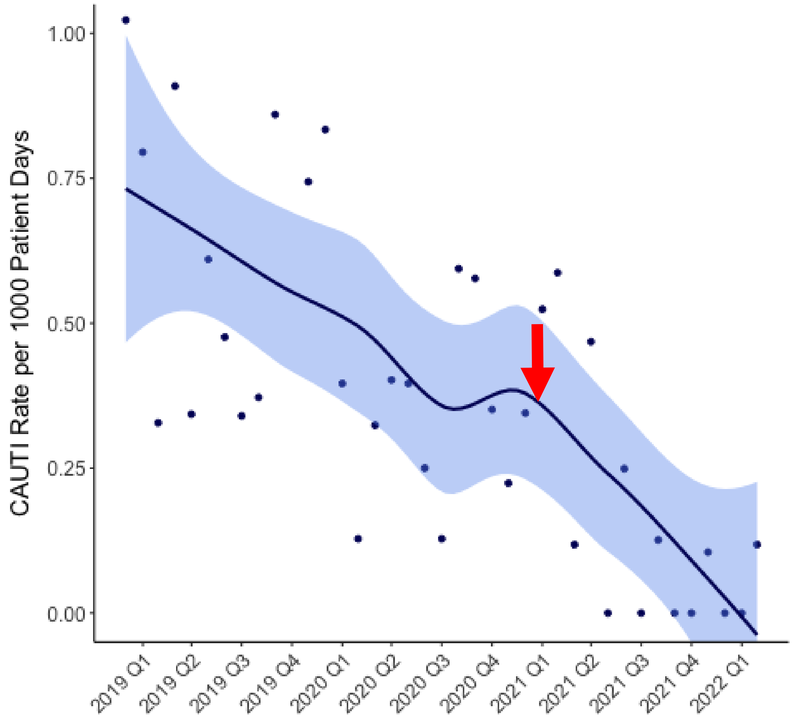


Results

Table 1: Summary of pre- and post-intervention results

	Pre-intervention	Post-intervention	% Reduction	P-value
UC Utilization Rate	0.23	0.18	22%	< 0.001
CAUTI Rate	0.523	0.099	81%	< 0.001
SUR	0.809	0.716	11%	0.002
SIR	0.392	0.135	66%	< 0.001

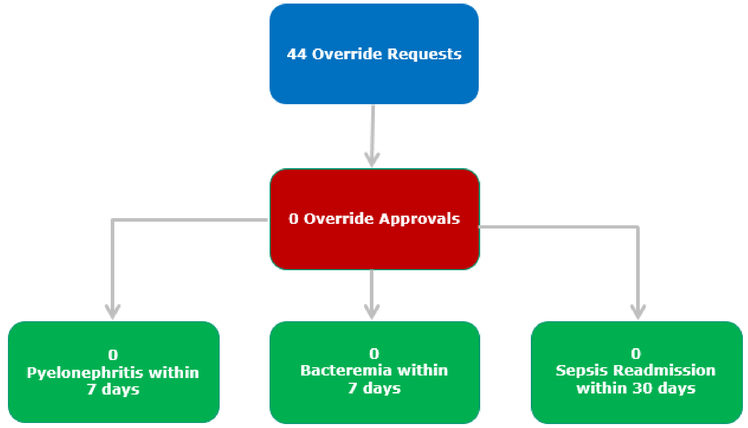
Figure 2: Pre-and post-intervention CAUTI rate



Results

- During the intervention period, there were 44 override requests that were deemed unnecessary with no adverse patient outcomes within 30 days

Figure 3: Outcomes of patients UC was deemed unnecessary



- The most common reason for an override request was fever (59%), followed by abnormal urinalysis (14%), and altered mental status (9%)

Conclusion

- We observed a reduction in UC testing, CAUTI rate, SIR and SUR after implementation of an electronic hard stop with expert review without causing patient harm

Acknowledgements

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