

of UA results before ordering cultures, this intervention successfully optimized diagnostic stewardship. The pilot program will be integrated into the electronic medical record and expanded to other units.

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Presentation Type:

Poster Presentation

Subject Category: CAUTI

Descriptive Epidemiology of Catheter-Associated Urinary Tract Infections at University of Iowa Health Care Medical Center

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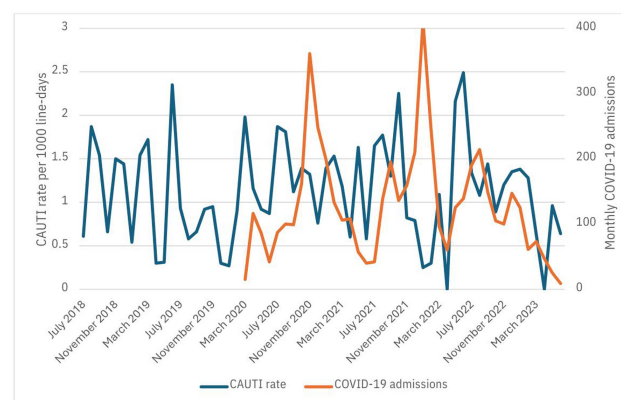
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Background: Catheter-associated urinary tract infections (CAUTIs) are among the most common healthcare-associated infections (HAIs), often resulting in prolonged hospital stays, increased healthcare costs, and additional clinical interventions. The COVID-19 pandemic introduced new challenges to infection prevention, with global reports indicating increased rates of certain HAIs, such as ventilator-associated pneumonia and bloodstream infections, due to healthcare strain and the intensified use of invasive devices. However, trends in CAUTI rates during the pandemic varied across healthcare settings. **Methods:** This retrospective study was conducted at the University of Iowa Health Care Medical Center, an 866-bed academic hospital, from 2018 to 2023. Manual chart reviews of CAUTI cases reported to the National Healthcare Safety Network (NHSN) were performed to collect data on patient demographics, medical histories, catheter usage, and infection prevention practices. CAUTI incidence was analyzed over time and compared with monthly COVID-19 admission rates. **Results:** A total of 226 CAUTI cases were identified during the study period. The average CAUTI rate per 1,000 catheter line-days declined from 1.23 in 2019 to 0.85 in 2020, but increased to 1.28 in 2021, coinciding with COVID-19 surges (Figure 1). The median patient age was 61 years, with females accounting for 56% of cases. Foley catheters were already in place upon admission in 24% of cases. Non-intensive care unit (ICU) inpatient settings accounted for 24% of catheter placements, while ICUs accounted for 18%. Additionally, 16% of cases originated from the operating room, and 7% from the emergency department. Neurologic disease was the most common admission diagnosis (27%), followed by cardiovascular disease (13%) and Hematologic/Oncologic disease (13%). Twenty six percent of cases were incontinent of urine and 24% of stool. Comorbidities included immunocompromised status (20%) and diabetes (36%). The primary indication for Foley catheter use was monitoring intake and output (42%). Of the 226 cases, 61% of patients were clinically considered to have a UTI. In-hospital mortality was 22%. **Conclusion:** The findings from this study provide insights into factors contributing to CAUTI at our institution. Fluctuations in CAUTI incidence, particularly during the COVID-19 pandemic, underscore the need for robust infection prevention strategies. The finding that only 61% of cases required treatment suggests urine cultures were often obtained inappropriately or positive results were not used in selected situations. This highlights an opportunity for diagnostic stewardship to improve urine culture practices. Addressing identified risk factors and enhancing catheter management are critical to reducing CAUTI incidence and improving patient outcomes.

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Figure 1: CAUTI incidence rate per 1000 line-days in adult units and monthly COVID-19 admissions, University of Iowa Health Care Medical Center, 2018–2023



Presentation Type:

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Infection on the Sidelines: Evaluating Bacteremia Rates in Device-Dependent Cardiology Patients

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Introduction: Patients with mechanical circulatory support (MCS) devices, such as ventricular assist devices (VAD) and extracorporeal membrane oxygenation (ECMO), are excluded from the National Healthcare Safety Network (NHSN) central line-associated bloodstream infection (CLABSI) criteria, whereas patients with intra-aortic balloon pumps (IABP) and Impella devices remain included. Since both MCS and Impella/IABP devices are associated with bloodstream infection risks, this study compares bacteremia rates among patients with VAD/ECMO, IABP/Impella, and central venous catheters (CVCs) to inform more accurate infection reporting. **Methods:** Using a surveillance database, we retrospectively reviewed bloodstream infections among patients with a CVC, ECMO/VAD, or IABP/Impella admitted to Duke University Hospital Cardiology units from January 2019 to July 2024. Bacteremia episodes were calculated per 1000 device days, with de-identified data pooled for final analysis. **Results:** A total of 849 bacteremia episodes were observed in patients with only a CVC (0.14 episodes/1000 device days), 98 in patients with ECMO/VAD (0.19/1000 device days), and 64 in patients with IABP/Impella (0.16/1000 device days). (Figure 1) Bacteremia incidence rate ratio (IRR) in patients with ECMO/VAD compared to patients with only a CVC was 1.30 (95% CI 1.05, 1.60, p-value 0.01). Bacteremia IRR in patients with Impella/IABP compared to patients with only a CVC was 1.12 (95% CI 0.87, 1.45, p-value 0.37). However, when we combined both ECMO/VAD and IABP/Impella bacteremia episodes and compared the bacteremia rate to patients with only a CVC, the incidence rate ratio was 1.22 (95% CI 1.03, 1.44, p-value 0.02). **Discussion:** The significantly different combined bacteremia rates among ECMO/VAD and IABP/Impella suggest that both device categories have significantly higher rates of bacteremia compared to CVC-only patients. Thus, NHSN should reconsider NHSN exclusion criteria for Impella/IABP patients similar to that for ECMO/VAD patients. Further collaboration with institutions, could strengthen findings and refine infection control protocols in high-risk, device-dependent patients.

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