

Presentation Type:

Poster Presentation

Effect of an External Urinary Collection Device on Catheter Associated Urinary Tract Infections in Hospitalized Women

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Background: Catheter-associated urinary tract infections (CAUTIs) are a common hospital-acquired infection (HAI) resulting in excess morbidity, mortality, and cost. Urine management can be a challenging issue, particularly in women, due to limited options for control of urinary incontinence. Issues with urinary leakage and worry for subsequent skin break down often leads to indwelling catheter insertion. In the spring of 2018, our facility implemented a female external urine collection device (EUCD) in efforts to decrease catheter days and to limit CAUTIs. **Methods:** Retrospective, 32-month (January 2017–August 2019), quasi-experimental, before-and-after study. Catheter use and CAUTI were defined according to CDC NHSN criteria. Poisson regression was used to model the rate of CAUTI (per 1,000 patient days [PD] and per 1,000 catheter days [CD]) comparing the 14 months prior to EUCD introduction with the 14 months after introduction and allowing a 3-month introduction period. **Results:** The CAUTI rate did not change significantly. The overall CAUTI rate per 1,000 PD decreased slightly from 0.24 to 0.20 ($P = 0.44$; model risk, 0.86; 95% CI, 0.58–1.26) whereas the rate per 1,000 CD increased slightly 1.5 to 1.6 ($P = 0.76$; model risk, 1.06; 95% CI, 0.73–1.56). The CAUTI rate for men increased from 0.09 to 0.11 per 1,000 PD ($P = 0.42$; model risk, 1.29) and from 0.99 to 1.55 per 1,000 CD ($P = 0.17$; model risk, 1.56). For women, the rate of CAUTI decreased from 0.15 to 0.09 per 1,000 PD ($P = 0.10$; model risk, 0.61) and from 2.12 to 1.65 per 1,000 CD ($P = 0.38$; model risk, 0.38). A significant decrease in catheter days (CD per 1,000 PD; $P < .0001$) was observed for all hospitalized patients (from 158.56 to 128.3; model risk, 0.81), for men (from 87.06 to 72.15; model risk, 0.83), and for women (from 71.49 to 56.15; model risk, 0.79). Of 2,347 adverse

events, 5 (0.2%) involved perineal skin breakdown and redness. Three events were related to malposition of the ECUD or inappropriate level of suction and 1 event was related to latex allergy and EUCD use. **Conclusions:** The introduction of a EUCD for women was associated with a significant decrease in indwelling catheter usage. A trend toward a decrease in CAUTI per 1,000 PD for women was observed ($P = .10$). Additional studies on whether the EUCD is associated with changes in UTI rates (both CAUTIs and noncatheter UTIs) as well as cost implications of EUCD are warranted.

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Effect of Removing Contact Precautions for Multidrug-Resistant Organisms on Hospital Infections in a Pediatric Health System

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Background: Discontinuation of contact precautions for methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant Enterococci (VRE) have failed to show an increase in associated transmission or infections in adult healthcare settings. Pediatric experience is limited. **Objective:** We evaluated the impact of discontinuing contact precautions for MRSA, VRE, and extended-spectrum β -lactamase-producing gram-negative bacilli (ESBLs) on device-associated healthcare-associated infections (HAIs). **Methods:** In October 2018, contact precautions were discontinued for children with MRSA, VRE, and ESBLs in a large, tertiary-care pediatric healthcare system comprising 2 hospitals and 620 beds. Coincident interventions that potentially reduced HAIs included blood culture diagnostic stewardship (June 2018), a hand hygiene education initiative (July 2018), a handshake antibiotic stewardship program (December 2018) and multidisciplinary infection prevention rounding in the intensive care units (November 2018). Compliance with hand hygiene and HAI

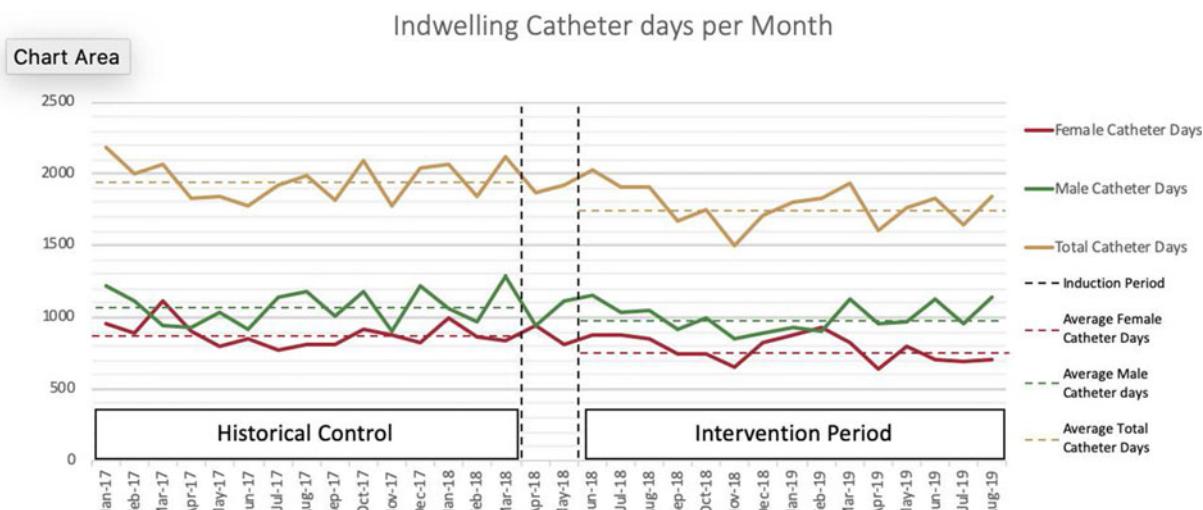
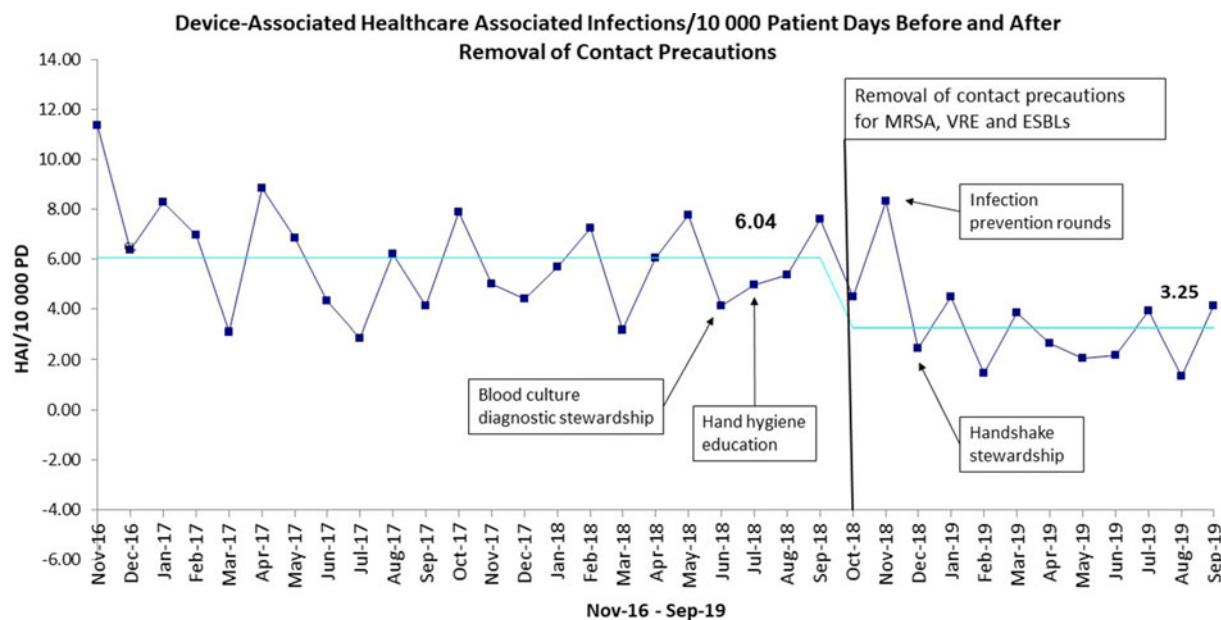


Fig. 1.

**Fig. 1.**

prevention bundles were monitored. Device-associated HAIs were identified using standard definitions. Annotated run charts were used to track the impact of interventions on changes in device-associated HAIs over time. **Results:** Average hand hygiene compliance was 91%. Compliance with HAI prevention bundles was 81% for ventilator-associated pneumonias, 90% for catheter-associated urinary tract infections, and 97% for central-line-associated bloodstream infections. Overall, device-associated HAIs decreased from 6.04 per 10,000 patient days to 3.25 per 10,000 patient days after October 2018 (Fig. 1). Prior to October 2018, MRSA, VRE and ESBLs accounted for 10% of device-associated HAIs. This rate decreased to 5% after October 2018. The decrease in HAIs was likely related to interventions such as infection prevention rounds and handshake stewardship. **Conclusions:** Discontinuation of contact precautions for children with MRSA, VRE, and ESBLs were not associated with increased device-associated HAIs, and such discontinuation is likely safe in the setting of robust infection prevention and antibiotic stewardship programs.

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Effect of Short-Term Carbapenem Restriction on Antimicrobial Susceptibility of Resistant Gram-Negative Bacilli in an ICU
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Background: Carbapenem-resistant GNB infections are a serious public health problem worldwide, particularly due to the high mortality associated with them and the low number of therapeutic options. One approach to this challenge is the development of antimicrobial stewardship programs. **Objective:** We evaluated the impact of a carbapenem restriction program on reducing of bacterial resistance in an intensive care unit (ICU). **Methods:** A

retrospective study conducted in 2 phases in the 80-bed ICU of an acute-care public hospital in Minas Gerais, Brazil. The preintervention phase lasted 16 months (January 2018–April 2019) and the second phase (carbapenem restriction), after the intervention, lasted 4 months (May–August 2019). The intervention was defined as carbapenem-sparing and the use of meropenem was authorized in 3 situations: (1) treatment of serious infections documented by extended-spectrum β -lactamase-producing Enterobacteriaceae (ESBL); (2) therapeutic failure with the use of another antimicrobial; and (3) infectious disease recommendation. Data were obtained through consultation of electronic medical records and microbiological results, as standardized by the CLSI, for patients with a >48-hour stay in the ICU and who met the criteria for healthcare-associated infection (HAI) according to the CDC NHSN definition. **Results:** Before the intervention, on average, 50 cultures were obtained with positive results for multidrug-resistant GNB–MER-GNB (SD, 12.2) and in the intervention phase, this number was 31 cultures (SD, 12.8; $P = .010$). Average carbapenem consumption decreased significantly with corresponding increase in cefepime consumption in the same period (Fig. 1). The ATB (DDD per 1,000 patient days) before the intervention for carbapenems was 110.6 (SD, 97.1) and for cefepime was 8.2 (SD, 5.9). In the intervention phase, the ATB for carbapenems was 44.7 (SD, 38.5; $P = .015$) and for cefepime it was 32.0 (SD, 20.3; $P < .001$). In terms of multi-drug resistance rate, before the intervention, 95 of 149 of *Acinetobacter* (64%) were resistant and during the intervention, 13 of 30 *Acinetobacter* (43%) were resistant ($P = .043$). Other GNB (*Klebsiella*, *Proteus*, *Escherichia coli*, and *Pseudomonas*) reduced the resistance rate, but without statistical significance. We observed a reduction in the HAI rate per MDR-GNB (Fig. 2): before the intervention, it was 22.7 (SD, 5.5) and during the intervention phase it was 16.5 (SD, 7.7; $P = .07$), although this change did not reach statistical significance. Nevertheless, the ICU *Klebsiella* infection rate did significantly decrease; it was 5.5 (SD, 1.9) before the intervention and 2.4 (SD, 1.8) after the intervention ($P = .009$). **Conclusions:** Short-term carbapenem restriction may be an effective strategy to reduce the incidence of carbapenem-resistant