Presentation Type:
Poster Presentation

Implementation of a Female External Urinary Catheter Reduces Indwelling Urinary Catheter Use and Catheter-Associated Urinary Tract Infections

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Background: Using alternatives to indwelling urinary catheters plays a vital role in reducing catheter-associated urinary tract infections (CAUTIs). We assessed the impact of introducing female external catheters on urinary catheter utilization and CAUTIs. **Methods:** In a 500-bed academic medical center, female external catheters were implemented on October 1, 2017, with use encouraged for eligible females with urinary incontinence but not meeting other standard indications for urinary catheters. Nurses were educated and trained on female external catheter application and maintenance, and infection prevention staff performed surveillance case reviews with nursing and medical staff. We determined the number of catheter days for both devices based on nursing documentation of device insertion or application, maintenance, and removal. We used the CAUTI and DUR (device utilization ratio) definitions from the CDC NHSN. Our primary outcomes were changes in DUR for both devices 21 months before and 24 months after the intervention in both intensive care units (ICUs) and non-ICU wards. We used a generalized least-squares model to account for temporal autocorrelation and compare the trends before and after the intervention. Our secondary outcome was a reduction in CAUTIs, comparing females to males. **Results:** In total, there were 346,213 patient days in 35 months. The mean rate of patient days per month increased from 7,436.4 to 7,601.9 after the implementation of female external catheters, with higher catheter days for both urinary catheters (18,040 vs 19,625) and female external catheters (22 vs 12,675). After the intervention, the DUR for female external catheters increased (0 vs 0.07; $P < .001$) and for urinary catheters the DUR decreased (0.12 vs 0.10; $P < .001$) (Fig. 1). A reduction in urinary catheter DUR was observed in ICUs (0.29 vs 0.27; $P < .001$) but not wards (0.08 vs 0.08; $P =$ NS) (Fig. 2). Of the 39 CAUTIs, there was no significant overall change in the rate per 1,000 catheter days (1.22 vs 0.87; $P = .27$). In females (n = 20 CAUTI), there was a 61% reduction in the CAUTI rate per 1,000 catheter days (0.78 vs 0.31; $P = .02$), but no significant change in the rate in males (0.44 vs 0.56; $P = .64$). The CAUTI rate per 1,000 catheter days among females decreased in the ICUs (1.14 vs 0.31; $P = .04$) but not in wards (0.6 vs 0.33; $P = .96$). **Conclusions:** In a setting with

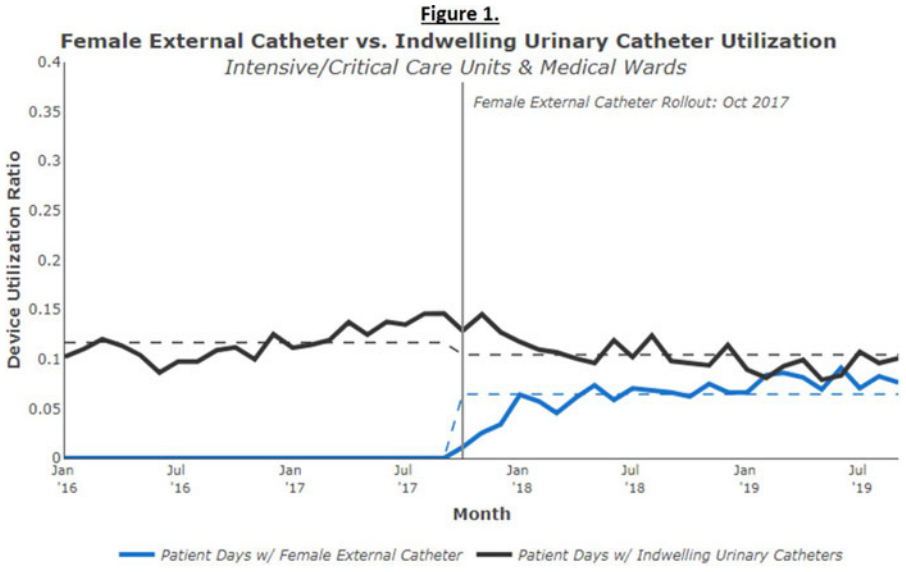

Fig. 1.

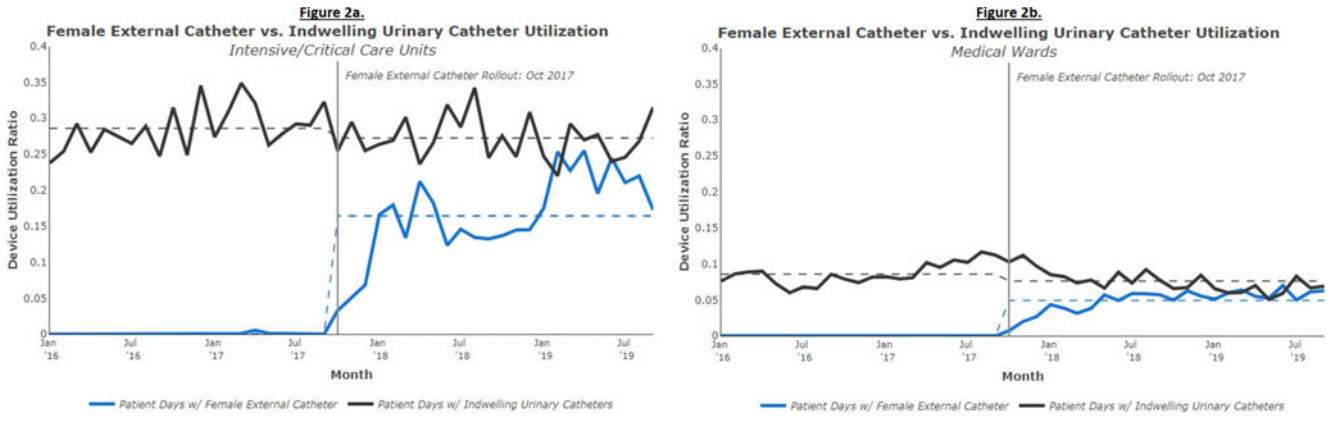

Fig. 2

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a baseline low UC DUR, successful implementation of female external catheters further modestly reduced UC DUR and was associated with a 61% decrease in CAUTI among females in the ICU but not in wards. Further interventions to better identify appropriate patients for female external catheters may improve patient safety and prevent patient harm.

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Poster Presentation

Improvement of Adequacy of Empirical Antimicrobial Therapy in *Escherichia coli* Bacteremia of Urinary Source in Catalonia (VINCat-PROA)

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Background: The antibiotic use optimization program (PROA) in Catalonia (Spain) is part of the surveillance program for nosocomial infections in hospitals in Catalonia (VINCat). Despite the existence of guidelines for the treatment of urinary tract infections in hospitals, adherence to them is not guaranteed. **Objective:** Our objective was to evaluate the adequacy of empirical antimicrobial therapy to local guidelines in bacteremia caused by *Escherichia coli* of urinary source within the PROA-VINCat program during a 3-year period. The impact of a voluntary survey asking for evaluating local results and implementing correction measures was also analyzed. **Methods:** Multicentric prospective observational study including all episodes of *E. coli* bacteremia of urinary source between May 2017 and September 2019, in adult hospitalized patients in 45 Catalan hospitals. Adequacy of the empirical therapy to local guidelines was one of the prospectively recorded items. A survey evaluating local results of 2017–2018 and asking for possible correcting measures was sent to the participating centers at the end of 2018. Percentages of adequacy of empirical antimicrobial therapy in 2017, 2018, and 2019 were compared by means of χ^2 test. **Results:** Overall, 3,804 episodes of bacteremia were recorded: 845 in 2017, 1,861 in 2018 and 1,098 until September 30, 2019. Globally, adequacy of empirical therapy to guidelines increased from 73.7% in 2017 to 78.2% in 2019 ($P = .06$). Interestingly, in the 24 hospitals that responded to the voluntary survey, the adequacy of empirical therapy increased significantly from 72.9% in 2017 to 79.9% in 2019 ($P = .009$). In hospitals that did not respond, adequacy remained the same over the years (76.7% in 2017, 75.1% in 2019; $P = .90$). Correction measures applied were: meeting with the antimicrobial stewardship team to evaluate the results (100%), review of local resistance rates (62%), review of local guidelines (58.3%), improving guidelines dissemination (75%), sessions for improving guidelines adherence (58%), and analysis of adherence to guidelines after education (65%). **Conclusions:** In the empirical treatment of *E. coli* bacteremia of urinary source, adequacy to local antimicrobial therapy guidelines improved from 2017 to 2019, but only in hospitals answering a voluntary survey regarding correcting measures for improving adequacy. Adherence to antimicrobial stewardship proposals improves indicators at local and regional level.

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Poster Presentation

Infection Control, Antimicrobial Consumption, and Hospital-Acquired *Clostridioides difficile* Infection in Acute-Care Hospitals in Catalonia

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Background: Hospital-acquired *Clostridioides difficile* infection (HA-CDI) is a major infection control challenge. Using whole-genome sequencing, <40% of HA-CDI cases have been estimated to have been acquired from other inpatient cases. Huge regional variations have been described depending on the prevalence of epidemic ribotypes. We hypothesized that, according to the geographical area, variations in HA-CDI rates between hospitals could be attributable either to differences in infection control policies or to antimicrobial consumption. Objectives: To assess the association of HA-MRSA rates (a surrogate marker of infection control policies) and antimicrobial consumption with HA-CDI incidence from 2011 to 2018 in hospitals reporting at the VINCat-program (Infection Control and Antimicrobial Stewardship Catalan Program). Methods: Data on 45 hospitals in Catalonia (with 70.5% of all adult acute-care hospital beds) reporting antimicrobial consumption, HA-MRSA, and HA-CDI new cases to the VINCat-program since 2011 to 2018 were analyzed. To report antimicrobial consumption, the Anatomical Therapeutic Chemical Classification (ATC) defined daily dose (DDD) index 2018 was used. Participating hospitals were classified into 3 groups according to size: group 1 (>500 beds), 9 hospitals; group 2 (500–200 beds), 15 hospitals; and group 3 (<200 beds), 21 hospitals. The number of hospitalization days recorded at the participating hospitals increased from 2,828,101 in 2011 to 3,201,680 in 2018. To analyze the association between HA-MRSA rate,

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