

Presentation Type:

Poster Presentation

Adverse Events Associated With Midline Vascular Catheters

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Background: Central-line-associated bloodstream infections (CLABSIs) result in increased patient morbidity. Guidelines recommend against peripheral venous catheters when access is required for longer than 6 days, often leading to central venous catheter (CVC) placement. To improve vascular access device choice and reduce the potential risk of CLABSI, we implemented a quality improvement initiative comprised of a vascular access algorithm and introduction of a midline vascular access device (MVAD). We report complications associated with MVAD use including deep vein thrombosis (DVT), thrombophlebitis, and BSI. **Methods:** A prospective quality improvement assessment from October 2017 through March 2018. All MVADs were monitored for DVT, thrombophlebitis, and BSI. Insertion time and removal of MVAD were tracked, as well as presence of other vascular access devices. **Results:** From October 2017 through March 2018, 858 MVADs were inserted in 726 different patients, yielding 3,588 MVD days. In total, 6 primary BSIs occurred in patients with MVADs. In patients with only a MVAD, the rate was 0.72 BSI per 1,000 MVAD days, whereas patients with an MVAD as well as a CVC had a rate of 1.98 per 1,000 MVAD days. The overall CLABSI rate at the institution during this period of time was 1.24 per 1,000 CVC days. Also, 29 cases of thrombophlebitis occurred, for a rate of 3.84 per 1,000 catheter days in patients with only an MVAD compared to 4.63 per 1,000 catheter days in patients with an MVAD and a CVC. Also, 25 DVTs occurred during this time, resulting in a rate of 2.88 per 1,000 catheter days in patients with only an MVAD and 4.63 per 1,000 catheter days in patients with multiple vascular-access devices. A significant correlation was noted between MVAD indwell time and BSI ($P = .0021$) and thrombophlebitis ($P = .0041$). The median indwell time for patients experiencing BSI was 16.17 days \pm 8.04 days, whereas the median indwell time for patients experiencing thrombophlebitis was 9.24 days \pm 7.99 days. **Conclusions:** The implementation of a vascular-access algorithm including MVAD may effectively reduce CVC insertions and BSIs. The rate of BSI in MVAD was below that of CLABSI during the assessment period. Known complications associated with MVAD include DVTs and thrombophlebitis, which correlates with the duration of catheterization, and these risks appear to be further compounded in patients requiring multiple devices for vascular access. Further research into comparing the risk of vascular access of MVAD with CVC is warranted.

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Alcohol Hand Rub Significantly Reduces Overall Bacterial Bioburden on Stethoscopes in a Real-World Clinical Setting

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Background: Stethoscopes are a known vector for microbial transmission; however, common strategies used to clean stethoscopes pose certain barriers that prevent routine cleaning after every use. We aimed to determine whether using readily available alcohol-based hand rub (ABHR) would effectively reduce bacterial bioburden on stethoscopes in a real-world setting. **Methods:** We performed a randomized study on inpatient wards of an academic medical center to assess the impact of using ABHR (AlcareExtra; ethyl alcohol, 80%) on the bacterial bioburden of stethoscopes. Stethoscopes were obtained from healthcare providers after routine use during an inpatient examination and were randomized to control (no intervention) or ABHR disinfection (2 pumps applied to tubing and bell or diaphragm by study personnel, then allowed to dry). Cultures of the tubing and bell or diaphragm were obtained with premoistened cellulose sponges. Sponges were combined with 1% Tween20-PBS and mixed in the Seward Stomacher. The homogenate was centrifuged and all but ~5 mL of the supernatant was discarded. Samples were plated on sheep's blood agar and selective media for clinically important pathogens (CIPs) including *S. aureus*, *Enterococcus* spp, and gram-negative bacteria (GNB). CFU count was determined by counting the number of colonies on each plate and using dilution calculations to calculate the CFU of the original ~5 mL homogenate. **Results:** In total, 80 stethoscopes (40 disinfection, 40 control) were sampled from 46 physicians (MDs) and MD students (57.5%), 13 advanced practice providers (16.3%), and 21 nurses (RNs) and RN students (26.3%). The median CFU count was ~30-fold lower in the disinfection arm compared to control (106 [IQR, 50–381] vs 3,320 [986–4,834]; $P < .0001$). The effect was consistent across provider type, frequency of recent usual stethoscope cleaning, age, and status of pet ownership (Fig. 1). Overall, 26 of 80 (33%) of stethoscopes harbored CIP. The presence of CIP was lower but not significantly different for stethoscopes that underwent disinfection versus controls: *S. aureus* (25% vs 32.5%), *Enterococcus* (2.5% vs 10%), and GNB (2.5% vs 5%). **Conclusions:** Stethoscopes may serve as vectors for clean hands to become recontaminated immediately prior to performing patient care activities. Using ABHR to clean stethoscopes after every use is a practical and effective strategy to reduce overall

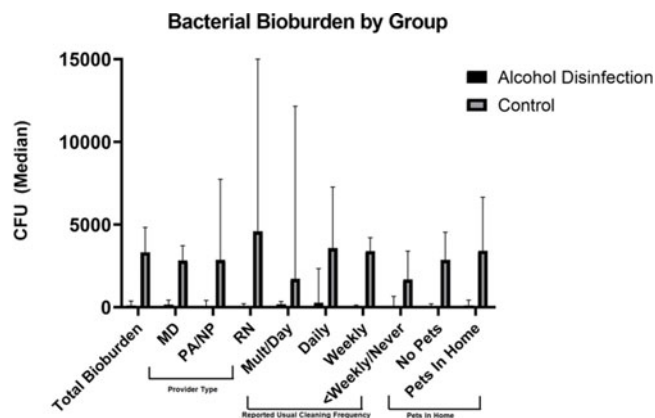


Fig. 1.