Presentation Type:
Poster Presentation
Subject Category: CLABSI
Real-Time Identification and Removal of Unnecessary Vascular Access Devices to Reduce Bloodstream Infections‡

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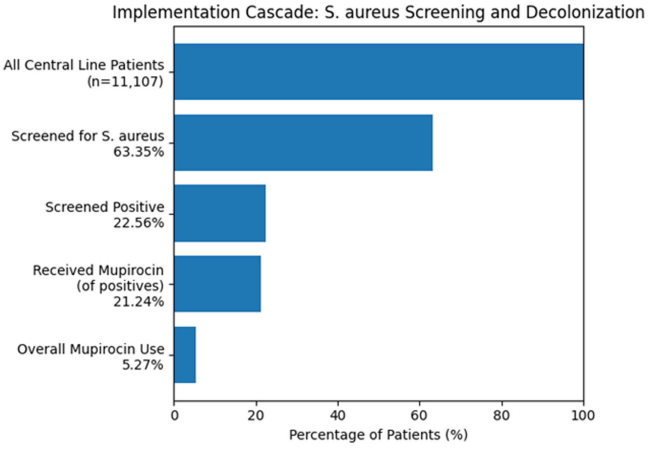
Background: The clinical indication for vascular access devices (VAD), including central venous catheters (CVC) and peripheral intravenous catheters (PVC), should be assessed daily. If VADs are no longer indicated, they should be removed to reduce the risk of catheter-associated bloodstream infections (CABSI). In 2030, the CDC's National Healthcare Safety Network (NHSN) will adopt a new metric for BSI surveillance called Hospital Onset Bacteremia (HOB) which is device agnostic. In this framework, all VADs, not just CVCs, will be considered potential causes of BSIs. We determined that unnecessary VAD use was increasing the hospital's CLABSI rate, particularly in non-ICU units. We partnered with the Patient Safety Committee and the Mission Control (MC) center to develop an intervention, called MC-CABSI, to encourage prompt removal of unnecessary VADs. **Methods:** We developed five messages to communicate with patient care teams via our EHR's secure chat, using data sourced from nursing flowsheets. The first, "Central Line Not Infusing," tracks CVCs without documentation of infusion in the last 48 hours. The second and third are "Central Line and Two or More PVCs" and "Three or More PVCs," respectively. These messages indicate high Vascular Access Device Density (VADD), defined as a unit's median VAD days, including both CVCs and PVCs. The VADD accounts for multiple devices in a given patient, unlike the Standardized Utilization Ratio currently used for CLABSI reporting. The fourth message is "Central Line Not Meeting Necessity," indicating a CVC documented as no longer indicated, but has not been removed. The fifth category is for any "Field-Inserted PVC," present <24 hours after admission. Our policy requires such PVCs be removed due to the likelihood they were placed in sub-optimal conditions. Messages are sent by two infection preventionists daily and include one nurse and Attending. **Result:** We have sent 253 messages since the intervention began July 2025, and care teams responded by removing ≥1 CVC or PVC from 145 patients (57% response rate). Hospital-wide VADD has decreased from 1.40 to 1.33 over this time compared to the previous six months. **Conclusion:** Dialogue with care teams has been collaborative, with many expressing gratitude for this effort. As the intervention matures, we intend to track results, dialogue with providers, and hone messaging to improve outcomes. We see potential to expand the real-time feedback to cover other devices like indwelling urinary catheters. We also see opportunity for automation to improve scalability in preparation for the shift to HOB surveillance.

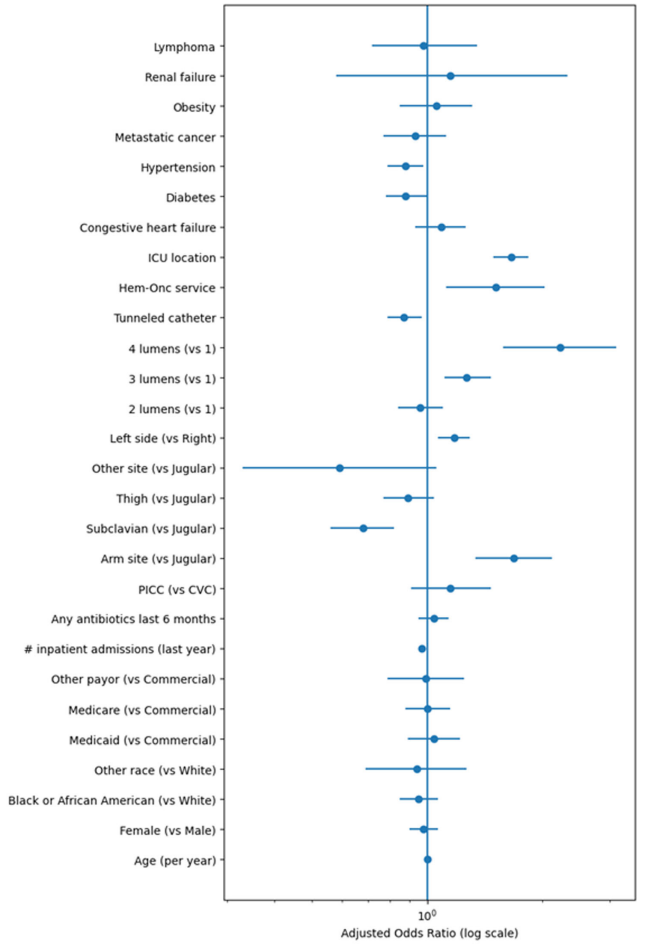
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Implementation Gaps in Staphylococcus aureus Screening and Mupirocin Decolonization Among Hospitalized Patients With Central Lines‡

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Background: Nasal colonization with Staphylococcus aureus is a well-established risk factor for central line–associated bloodstream infections (CLABSIs). Many institutions have adopted screening and targeted decolonization strategies using intranasal mupirocin; however, real-world implementation remain incompletely characterized. **Methods:** We conducted a retrospective cohort study at University Hospitals Cleveland Medical Center to evaluate implementation of S. aureus screening and decolonization protocol among hospitalized adults undergoing central venous catheter (CVC) or peripherally inserted central catheter (PICC) placement. All patients aged ≥18 years admitted between October 1, 2023, and May 5, 2025, who had a catheter placed were included. Patients with documented bloodstream infection at the time of catheter placement were excluded. Primary implementation outcomes were: (1) proportion of patients screened for S. aureus colonization, and (2) proportion of colonized patients who received prophylactic intranasal mupirocin.





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Secondary outcomes included overall mupirocin use, bloodstream infection (BSI), and CLABSI rates. Mixed effects logistic regression was performed to identify factors associated with screening uptake. **Results:** Among 11,107 central lines placed, 63.4% underwent S. aureus screening. Of those screened, 22.6% tested positive for Staph aureus. Only 21.2% of colonized patients received intranasal mupirocin, corresponding to an overall mupirocin use rate of 5.3%. Across all central lines placed during the study period, the overall BSI and CLABSI rates were 0.91% and 0.67%, respectively. In adjusted analyses, screening was more likely among patients with arm insertion sites (OR 1.68, 95% CI 1.34–2.12), left-sided catheter (OR 1.18, 95% CI 1.07–1.29), increasing catheter lumens (three lumens: OR 1.27, 95% CI 1.11–1.47; four lumens: OR 2.22, 95% CI 1.58–3.12), ICU location (OR 1.66, 95% CI 1.49–1.84), and hematology–oncology services (OR 1.51, 95% CI 1.12–2.03). Although catheter type itself was not independently associated with screening, patients receiving PICCs demonstrated a positive, though non-significant, trend toward higher screening uptake compared with CVCs (OR 1.15, 95% CI 0.91–1.47). Tunneled catheters (OR 0.87, 95% CI 0.79–0.97) and a higher number of prior inpatient admissions were associated with lower odds of screening, while demographic characteristics and most comorbidities were not. **Conclusions:** S. aureus screening uptake among patients with central lines was low, and gaps at subsequent steps in the process resulted in fewer than one quarter of colonized patients receiving mupirocin. This stepwise breakdown in implementation highlights opportunities to improve protocol reliability by reducing decision points through more standardized approaches.

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A multifaceted approach to reducing reportable central-line-associated bloodstream infections‡

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Background: Central-line-associated bloodstream infections (CLABSI) are a costly yet preventable healthcare-associated infections, contributing to increased morbidity and mortality. We describe the impact of a multidisciplinary multi-faceted approach on CLABSI rates at our institution. **Methods:** This is a pre—post quasi-experimental retrospective study across an 877-bed, quaternary care academic hospital in Southeast Michigan. The CLABSI rate per 1,000 central-line days, blood culture (BC) order rate per 1,000 patient days, standardized infection ratio (SIR) and standardized utilization ratio (SUR) in the pre-intervention period (1/2023-6/2024) to the post-intervention period (9/2024-8/2025) were compared. CLABSI was determined using National Healthcare Safety Network criteria. The multi-faceted intervention comprised of: (1) implementation of a diagnostic stewardship guideline with an algorithm-based approach to improve appropriate blood-culture ordering; (2) prompt notification of CLABSI-eligible patients to facilitate early evaluation for secondary sources; and (3) use of an electronic central line indications checklist to promote early removal of unnecessary lines, supported by an interprofessional stakeholder meeting in June 2024 that designated unit-level champions for execution and feedback. **Results:** The CLABSI rate significantly decreased from 1.604 to 1.044, resulting in a 35% reduction (p<0.017) [Table]. The SIR significantly decreased from 1.315 to 0.857, a 35% reduction (p=0.011). The SUR significantly decreased from 0.911 to 0.832, a 9% reduction (p<0.001). The BC order rate per 1,000 patient days decreased from 89.2 in the pre-intervention period to 70.7 post-intervention, a 21% reduction (p<0.001). Discussion: A significant reduction in CLABSI rates, central-line utilization, and blood-culture orders was observed following implementation of a multi-faceted approach supported by multidisciplinary collaboration. These findings demonstrate that a coordinated bundled strategy, executed in close collaboration with primary clinical teams, can significantly reduce CLABSI burden in a large academic medical center.

Table. Metrics in pre- and post-intervention period

Metric	Pre-intervention	Post-intervention	%Reduction	p value
CLABSI rate per 1,000 central line days	1.604	1.044	35%	<0.017
Blood culture order rate per 1,000 patient days	89.2	70.7	21%	<0.001
SIR	1.315	0.857	35%	0.011
SUR	0.911	0.832	9%	<0.001

CLABSI, central-line-associated bloodstream infection; BSI, bloodstream infection; SIR, standardized infection ratio; SUR, standardized utilization ratio

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Impact of a Multi-Modal Intervention Bundle on CLABSI Reduction across a Long-Term Acute Care Hospital System‡

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Background: Central line-associated bloodstream infections (CLABSIs) remain a significant challenge in long-term acute care hospitals (LTACHs), where patients have extended lengths of stay, high device utilization, and complex medical conditions. In 2024, our 11-hospital LTACH system had a CLABSI standardized infection ratio (SIR) of 1.23, performing above (worse than) the national benchmark. A comprehensive, system-wide initiative was needed to reduce preventable infections and improve patient outcomes. **Methods:** In January 2025, we implemented a multi-modal intervention bundle across 11 LTACHs spanning multiple states. Key components included: (1) A standardized mini-root cause analysis (Mini-RCA) process requiring facility infection preventionists to complete a structured review within 48 hours of each CLABSI event, examining insertion and maintenance bundle compliance, contributing factors, and preventability. Findings were shared with frontline staff and reported to each facility's QAPI committee. (2) Beginning August 2025, corporate infection prevention oversight calls were initiated to review events and identify system-wide patterns. (3) In-house vascular access training was expanded to three facilities, enabling nurses to insert PICCs and midlines under ultrasound guidance, reducing reliance on external contractors and empowering staff to evaluate line necessity and step-down opportunities from central lines to less invasive devices. (4) A blood culture stewardship program was implemented in partnership with pharmacy, emphasizing appropriate culturing indications, transitioning from line draws to two peripheral sticks when feasible, and antibiotic stewardship principles. **Results:** Comparing full-year 2024 data to January-November 2025, CLABSI events decreased from 56 to 22 (61% reduction). The system SIR improved from 1.23 to 0.53, representing a 57% improvement and performance significantly better than the national benchmark. Central line days decreased by 8% (40,825 to 37,570), and the standardized utilization ratio (SUR) improved from 0.77 to 0.73. **Conclusions:** Implementation of a multi-modal intervention bundle featuring standardized event review, corporate oversight, enhanced vascular access capabilities, and blood culture stewardship achieved significant and sustained CLABSI reduction across a geographically dispersed LTACH system. The Mini-RCA process created accountability and rapid feedback loops, while in-house line placement empowered clinical staff to critically evaluate device necessity. This approach demonstrates that meaningful infection prevention

‡The abstract titles in this supplement have been corrected since original publication. A notice detailing the changes has been published at https://doi.org/10.1017/ash.2026.10802.

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