Presentation Type:
Poster Presentation - Top Poster Award
Subject Category: CLABSI
Relative risk of primary bloodstream infection in patients with mechanical circulatory support devices
Rachel Wolansky; Patrick Burke; Ryan Miller and Thomas Fraser

Background: Patients requiring mechanical circulatory support (MCS) during episodes of cardiogenic shock are at risk for hospital-acquired bloodstream infection (HABSI). Clinically MCS devices include extracorporeal membrane oxygenation (ECMO) devices, durable and temporary left ventricular-assist devices (VADs), and intra-aortic balloon pumps (IABPs). However, the MCS exclusion to the NHSN central-line–associated bloodstream infection (CLABSI) surveillance rules in 2018 did not include IABP as a qualifying device. We have described utilization and incidence of primary HABSI (pHABSI) in our patients requiring MCS. **Methods:** The setting for this study was 9 cardiothoracic and heart failure intensive care units with 131 total beds at the Cleveland Clinic Main Campus. Surveillance for HABSI to include determination of CLABSI was performed prospectively. MCS-associated pHABSI were patients who had ECMO, LVAD, or IABP present for >2 calendar days with device in place on the date of infection or removed the day before. A patient with 2 device types at time of infection was counted as a pHABSI for both groups. Patient, device, and MCS days were extracted from an electronic database. Non-MCS patient days were calculated as the difference between total patient days and total MCS days. The incidence of ECMO-, VAD-, and IABP-associated pHABSI were compared to each other and to non–MCS-associated pHABSI using OpenEpi version 3.01 software. **Results:** Surveillance results are shown in Table 1. During the observation period, there were 221 pHABSIs and 139,013 patient days. Moreover, 67 pHABSIs were associated with an MCS device over 17,044 total MCS days: 43 ECMO days, 18 VAD days, and 13 IABP days. Also, 9 patients had >1 type of eligible device and 7 (39%) of the IABP-associated pHABSIs were CLABSIs. The cumulative incidences of pHABSI associated with ECMO, VAD, and IABP were 5.68, 4.59, and 2.34 per 1,000 MCS days, respectively. The incidence of IABP pHABSI was not significantly different from VAD pHABSI ($P = .06$), but it was different from ECMO pHABSI ($P < .01$). The pHABSI rate for non-MCS days was 1.26 per 1,000 patient days. **Conclusions:** In our patients requiring MCS, the risk of pHABSI associated with IABP was significantly greater than in patients without MCS and was similar to patients with VAD. MCS of all types should be considered a risk for HABSI in patients with cardiogenic shock beyond the presence of a central line. Protocols to further prevent HABSI morbidity in IABP patients are needed.
Disclosure: None

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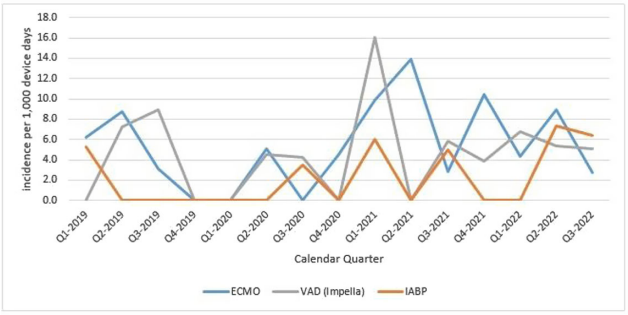
Table –Number and incidence density of pHABSI, and device-utilization ratios in patients with ECMO VAD and IABP, or no MCS.

	N pHABSI Rate (incidence density)*	*Device-days (device utilization ratio)*	*Incidence Rate Ratio (95% CI)*
ECMO	43 (5.68 per 1,000 ECMO-days)	7569 (0.05)	4.50 (3.18 – 6.27)
VAD	18 (4.59 per 1,000 VAD-days)	3918 (0.03)	3.64 (2.17 – 5.81)
IABP	13 (2.34 per 1,000 IABP-days)	5557 (0.04)	1.85 (1.01 – 3.17)
No MCS	154 (1.26 per 1,000 non-MCS patient-days)	-	referent

*Nine patients had more than one type of MCS device

Image – Time series incidence density of device-associated pHABSI in ECMO, VAD, and IABP.



Presentation Type:
Poster Presentation - Top Poster Award
Subject Category: COVID-19
Healthcare personnel at non–acute-care facilities are at risk of COVID-19 from workplace and community exposures
Armaghan-e-Rehman Mansoor; Caroline O'Neil; David McDonald; Victoria Fraser; Hilary Babcock and Jennie Kwon

Background: Healthcare personnel (HCP) working in non–acute-care facilities are at high risk of COVID-19. We sought to determine SARS-CoV-2 seroprevalence, and analyzed behaviors and activities related to COVID-19 acquisition in this cohort. **Methods:** Between May and June 2021, HCP were enrolled at a skilled nursing facility and a memory care facility in St. Louis, Missouri. Data regarding demographics, prior SARS-CoV-2 testing, symptoms consistent with COVID-19 in the previous 6 months, COVID-19 vaccination, personal protective equipment (PPE) use, and COVID-19 exposures were collected via survey. Blood specimens were obtained to determine SARS-CoV-2 nucleocapsid IgG antibody seroprevalence (Abbott Laboratories). Study protocol was approved by the Washington University Institutional Review Board. **Results:** The survey was completed by 74 HCP. 82% of participants were female, and 31% reported >10 years of healthcare experience. The overall SARS-CoV-2 seropositivity rate was 8.9% (5 HCP). Of the surveyed HCP, 50% reported symptoms concerning for COVID-19 in the prior 6 months. Headache (38%), fatigue (35%) and fever (27%) were the most common self-reported symptoms. Among symptomatic HCP, only 35% sought medical care for these symptoms. All HCP reported having taken at least 1 COVID-19 test prior to study enrollment. Of note, 18.9% (14 HCP) had a self-reported prior positive SARS-CoV-2 PCR test, of whom 9 HCP were seronegative. All seronegative HCP with a self-reported history of COVID-19 reported infection >3 months before study participation. Completion of a primary COVID-19 vaccination series was reported by 86% of HCP. Known exposure to COVID-19 at work was reported by 28% of HCP. When asked about PPE at the time of workplace exposure, N95 mask use was reported by 81%, gloves by 57%, gowns by 33%, face shields by 29% and surgical masks by 14%. Known specific exposure to COVID-19 outside work was reported by 31% of HCP. **Conclusions:** One year after the initial COVID-19 pandemic impacted the St. Louis region, HCP at non–acute-care facilities had a SARS-CoV-2 seroprevalence of 8.9%. Similar frequency of exposures were reported from both the workplace and community, with high rates of PPE use at the workplace. HCP in such settings remain at high risk of COVID-19 exposure from workplace and community exposures. Ongoing efforts are needed to maintain PPE use to prevent SARS-CoV-2 transmission within non–acute-care facilities, and continue access to timely COVID-19 screening for HCP.
Disclosure: None

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