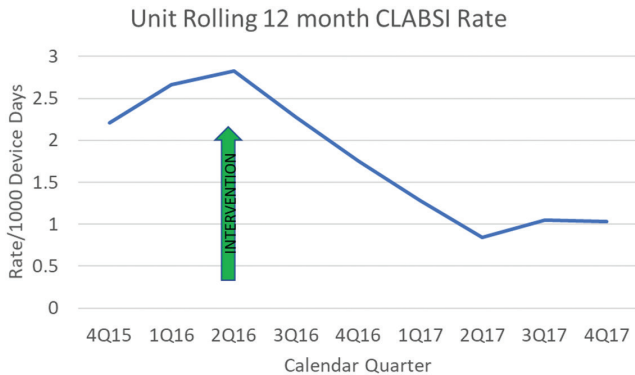


Review of cases, identified barriers to CHG bathing compliance. Audits of compliance with CHG bathing was performed pre-intervention. Interviews of staff and patients identified key barriers to compliance, which included, education on the benefit of CHG bathing in prevention of CLABSI, education of the potential for “sticky” feeling after bathing, education of staff on benefits and risk, and patient self-bathing education. Our implementation began in July 2016, and included, patient and staff education, a patient contract for use of CHG, daily patient signatures after bathing, signage in patient rooms with bathing instructions, and improved compliance parameters.

Results. Compliance with CHG bathing pre-intervention was 81%, and post was 93%. Definitions for compliance changed as part of implementation, to include patient signature, and reasons for noncompliance. CLABSI rate for the BMTU pre-intervention was 2.2/1,000 device days in 2015, post intervention 1.0/1000 device days in 2017 for a 55% reduction in CLABSI. Figure 1 illustrates the decline in CLABSI rate over time after the intervention. No concomitant interventions were implemented during this period.

Conclusion. Patients outside of the ICU are typically nonventilated, awake and capable of self-bathing. Many interventions have been implemented to decrease CLABSI; however, the need for patient engagement and education in the implementation is a critical step that needs to be addressed to ensure fidelity and success of the intervention.



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2094. Pulmonary Artery Catheter Epidemiology of Risk (PACER) Study

Zachary Yetmar, MD¹; Brian Lahr, MS²; John O'Horo, MD, MPH³; Atta Behfar, MD, PhD⁴; Priya Sampathkumar, MD, FIDSA, FSHEA⁵ and Elena Beam, MD⁶; ¹Internal Medicine, Mayo Clinic, Rochester, Minnesota, ²Biomedical Statistics and Informatics, Mayo Clinic, College of Medicine, Rochester, Minnesota, ³Pulmonary and Critical Care Medicine, Mayo Clinic, Rochester, Minnesota, ⁴Cardiovascular Diseases, Mayo Clinic, Rochester, Minnesota, ⁵Infectious Diseases, Mayo Clinic, Rochester, Minnesota, ⁶Infectious Disease, Mayo School of Graduate Medical Education, Rochester, Minnesota

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Background. Central line-associated bloodstream infections (CLABSI) are a known complication of central venous access. Pulmonary artery catheters (PAC) are frequently used in status 1A pre-heart transplant patients, at the top of the heart transplant waiting list. These patients often have a PAC in place for extended periods of time and are thus at risk for CLABSI. Our institution's practice includes routine PAC exchange after 21 days of use. We sought to estimate the risk of CLABSI and determine whether factors influenced infection rate.

Methods. We conducted a retrospective, descriptive study from January 2013 to December 2016 identifying characteristics of PAC use and infection rate in adult status 1A pre-heart transplant patients. Time to CLABSI was analyzed with Kaplan-Meier estimates. The effect of CLABSI on time to transplant and death were analyzed in time-dependent Cox models.

Results. We identified 61 status 1A pre-heart transplant patients with PACs during this time period with 219 PACs and 2566 line-days. Median duration of PAC was 11 days. There were 14 CLABSIs for an infection rate of 5.46/1,000 line-days (95% CI: 2.98–9.15), compared with 1.06/1,000 line-days for our institution's intensive care unit rate. Causative organisms were coagulase-negative *Staphylococcus* (79%), *Enterobacter* (7%), *E. coli* (7%), and *Klebsiella* (7%). There was a trend toward higher infection rate per 1,000 line-days with longer duration of PACs. Lines in place for 0–10 days resulted in an infection rate of 3.14 (1.02–7.32); 11–20 days with a rate of 8.70 (3.19–18.94); and >20 days with a rate of 32.61 (6.72–95.30). There was a trend toward higher infection rate with more concomitant non-PAC lines used (0 other lines, 4.57; 1 line, 6.21; 2 or more, 11.56). Median time to infection diagnosis from PAC placement was 29 days (23–49). Line infection was associated with shorter time to transplant (hazard ratio 2.49; $P = 0.027$), but no effect on mortality (hazard ratio 1.79; $P = 0.355$).

Conclusion. Our study demonstrated a high rate of CLABSI with PAC, with a trend toward increased risk with longer use, and presence of concomitant lines. Infection was associated with a shorter time to transplant, though not with time to death. Prolonged PAC use in the status 1A population should be revisited.

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2095. Infections in Burn Patients Receiving Extracorporeal Membrane Oxygenation (ECMO) at a Tertiary Military Medical Center

Joseph Marcus, MD¹; Lydia Piper, MD²; Craig Ainsworth, MD³; Valerie Sams, DO⁴; Jason Okulicz, MD⁵ and Alice Barsoumian, MD⁶; ¹Internal Medicine, San Antonio Military Medical Center, San Antonio, Texas, ²Surgery, San Antonio Military Medical Center, San Antonio, Texas, ³US Army Institute of Surgical Research, San Antonio, Texas, ⁴SAMMC, San Antonio, Texas, ⁵Infectious Disease, San Antonio Military Medical Center, Fort Sam Houston, Texas, ⁶Infectious Disease Service, Department of Medicine, San Antonio Military Medical Center, JBSA Fort Sam Houston, Texas

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Background. Patients on ECMO are at higher risk for nosocomial infections. While several studies report on infections in ECMO patients, the epidemiology of infections in burn patients on ECMO has not been previously described.

Methods. A retrospective chart review was performed on all patients on ECMO for >48 hours at Brooke Army Medical Center and the U.S. Army Institute of Surgical Research Burn Center between 2012 and 2017. Patient demographics, burn status, ECMO characteristics, and infection incidence during ECMO were captured. Statistical analyses comparing burn vs. nonburn patients were performed using chi-squared, Fisher's exact and Mann-Whitney U tests.

Results. In comparison with those without diagnosed infections, infected patients had more days on ECMO (median [IQR] 16 [12–20] vs. 6.5 [5–10], $P < 0.01$) and longer hospitalization (median [IQR] 35 [24–54] vs. 23.5 days [8–45], $P = 0.06$), however survival to hospital discharge was no different (64% vs. 58%, $P = 0.77$). Burn patients trended toward more infections in their ECMO course (table).

	Burn (n = 14)	Nonburn (n = 38)	P-Value
Median age (years)	29.5 (25–39)	39 (29.5–55.5)	0.05
Gender, male	9 (64%)	25 (74%)	1
Median days on ECMO	14 (8–18)	9 (5–14)	0.26
Survival to discharge	9 (64%)	23 (72%)	1
Median length of stay (days)	34 (25–47)	24 (11–50)	0.23
Median burn % total body surface area (%TBSA)	25 (21–40)	n/a	n/a
Infections on ECMO			
Any infection	10 (71%)	18 (47%)	0.21
Multiple infections	7 (50%)	9 (24%)	0.07
Respiratory infection (RI)	9 (64%)	13 (34%)	0.07
Blood stream infection (BSI)	4 (28.6%)	7 (18.4%)	0.46
Other infection	5 (35.7%)	9 (24%)	0.49
Median time to RI diagnosis (days)	3 (1–9)	2 (1–6.5)	0.79
Median time to BSI diagnosis (days)	2.5 (2–5)	5 (1–2)	0.74
Total infections per 1000 ECMO days	99.7	50.6	0.02
RI per 1,000 ECMO days	49.9	22.7	0.12
BSI per 1,000 ECMO days	22.1	12.2	0.52

All data expressed as number N , % or median, interquartile range (IQR) unless otherwise stated.

Conclusion. Infection is a common complication of ECMO and is associated with longer duration on ECMO and longer hospitalizations. Burn patients in this cohort were observed to have higher rates of infection compared with nonburn patients.

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2096. Evaluation of a Midline Catheter Program and Effect on Central Line-Associated Blood Stream Infections

Richard Hankins, MD¹; Mark E. Rupp, MD²; Teresa Micheels, MSN, RN, CIC³; Adrienne Sy, RN, BSN⁴; Angela Boesch, RN, BSN⁴; Kim Hayes, RN⁴; Luana Evans, MBA, BS⁵ and Kelly Cawcutt, MD⁴; ¹Infectious Disease, University of Nebraska Medical Center, Omaha, Nebraska, ²Internal Medicine, Division of Infectious Diseases, University of Nebraska Medical Center, Omaha, Nebraska, ³Infection Control and Epidemiology, Nebraska Medicine, Omaha, Nebraska, ⁴University of Nebraska Medical Center, Omaha, Nebraska

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Background. Central line-associated blood stream infections (CLABSI) 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 (CVCs) placement. To improve vascular access device choice and reduce the potential risk of CLABSIs, we implemented a quality improvement initiative comprised of a new vascular access algorithm with introduction of midline utilization and sought to evaluate the impact of midline use on CLABSI rates.

Methods. A prospective quality improvement assessment from October 2017 through March 2018 analyzed the infection rates of midline catheters and CVCs. When a consult was placed for a peripherally inserted central catheter (PICC) that the patient would be evaluated via the vascular access algorithm (Figure 1) for whether they should receive a midline catheter, a PICC or a traditional CVC. The midline catheters, PICCs, and CVCs were monitored for duration of indwell and bloodstream infections consistent with reportable CLABSI definitions.

Results. In the month prior to implementation, the institutional CLABSI rate was 1.36 per 1,000 CVC (including PICC) days. Since October 2017, there have been