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.

Unit Rolling 12 month CLABSI Rate

| Rate per 1000 Device Days | 2015 | 2016 | 2017 | 2018 |
|---------------------------|------|------|------|------|
| Total infections per 1000 ECMO days | 34.5 | 24.5 | 11.5 | 9.5 |

CLABSI = Central line-associated bloodstream infection

Disclosures. All authors: No reported disclosures.

2094. Pulmonary Artery Catheter Epidemiology of Risk (PACER) Study Zachary Yetmar, MD; Brian Lahr, MS; John O’Horo, MD, MPH; Atta Behfar, MD, PhD; Priya Sampathkumar, MD, FIDSA, FSHEA; and Elena Bean, MD, MD; Internal Medicine, Mayo Clinic, Rochester, Minnesota. "Biomedical Statistics and Informatics, Mayo Clinic, College of Medicine, Rochester, Minnesota, "Pulmonary and Critical Care Medicine, Mayo Clinic, Rochester, Minnesota, "Cardiovascular Diseases, Mayo Clinic, Rochester, Minnesota, "Infectious Diseases, Mayo Clinic, Rochester, Minnesota, "Infectious Disease, Mayo School of Graduate Medical Education, Rochester, Minnesota

Session: 234. Healthcare Epidemiology: Device-associated HAIs Saturday, October 6, 2018: 12:30 PM

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 PAGCs and 2566 line-days. Median duration of PAC was 11 days. There were 14 CLABSI 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 1–4 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 lined 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 = 0.335).

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. Prophylactic PAC use in the status 1A population should be revisited.

Disclosures. All authors: No reported disclosures.

2095. Infections in Burn Patients Receiving Extracorporeal Membrane Oxygenation (ECMO) at a Tertiary Military Medical Center Joseph Marcus, MD; Lydia Piper, MD; Craig Ainsworth, MD; Valerie Sams, DO; Jason Okulicz, MD; and Alice Borsoumani, MD; "Internal Medicine, San Antonio Military Medical Center, San Antonio, Texas, "Surgery, San Antonio Military Medical Center, San Antonio, Texas, "US Army Institute of Surgical Research, San Antonio, Texas, "SAMMC, San Antonio, Texas, "Infectious Disease, San Antonio Military Medical Center, Fort Sam Houston, Texas, "Infectious Disease Service, Department of Medicine, San Antonio Military Medical Center, JBSA Fort Sam Houston, Texas

Session: 234. Healthcare Epidemiology: Device-associated HAIs Saturday, October 6, 2018: 12:30 PM

Background. Patients on ECMO are at high 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 2016. 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).

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.

Disclosures. All authors: No reported disclosures.

2096. Evaluation of a Midline Catheter Program and Effect on Central Line-Associated Blood Stream Infections Richard Hankins, MD; Mark E. Rupp, MD; Teresa Michaels, MSN, RN, CIC; Adrienne Sy, RN, BSN; Angela Boesch, RN, BSN; Kim Hayes, RN; Luana Evans, MBA, BS; and Kelly Cavcavt, MD; "Infectious Disease, University of Nebraska Medical Center, Omaha, Nebraska, "Internal Medicine, Division of Infectious Diseases, University of Nebraska Medical Center, Omaha, Nebraska, "Infection Control and Epidemiology, Nebraska Medicine, Omaha, Nebraska, "University of Nebraska Medical Center, Omaha, Nebraska

Session: 234. Healthcare Epidemiology: Device-associated HAIs Saturday, October 6, 2018: 12:30 PM

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 CLABSI, 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
4,588 midline catheter days, with two midline infections, for a cumulative rate over those 6 months of 0.435 midline catheter infections per 1,000 midline days. This was compared with 26,575 CVC days, with 33 documented CLABSIs, for a rate of 1.242 per 1,000 CVC days. Since the vascular algorithm was implemented, the infection rate from the compilation of CVC and midline catheters is 1.12 per 1,000 catheter days. This further research into comparing additional risks, benefits, complications and costs of midline catheters and all styles of central venous catheters is warranted.

Disclosures. All authors: No reported disclosures.

---

2097. Do Catheter-Associated Bloodstream Infections Affect Patients’ Perception of Care?

Mariam Assi, MD; Nargiza Kurbanova, RN, BSN, BA; and Rehan Qayyum, MD, MHS, FAHA; Internal Medicine, Virginia Commonwealth University Health System, Richmond, Virginia, Virginia Commonwealth University Health System, Richmond, Virginia, Internal Medicine, Virginia Commonwealth University Medical Center, Richmond, Virginia

Session: 234. Healthcare Epidemiology: Device-associated HAI's Saturday, October 6, 2018: 12:30 PM

Background. Few cross-sectional studies have reported an association between patient satisfaction, a metric for performance-based hospital reimbursement, and catheter-associated bloodstream infections (CLABSI), but the persistence of this relationship over time has not been examined. Therefore, our aim in this study was to examine this relationship over a 4-year period using data from almost all hospitals in the United States.

Methods. We used the publicly accessible Hospital Compare website to extract data on hospital characteristics, hospital-level CLABSI and patient satisfaction scores (Hospital Compare Consumer Assessment of Healthcare Providers and Systems survey data) from 2011 to 2014. Mixed linear regression models were used to examine the relationship between the four domains of satisfaction scores (included in models separately) and observed to expected CLABSI ratio without and with adjustment for hospital ownership, availability of emergency services, nurse to bed ratio, resident to bed ratio, total number of beds, total number of physicians, and urban vs. rural status.

Results. Of the 3,528 hospitals (12,396 observations) with patient satisfaction data, CLABSI data were available for 2,129 hospitals. The mean (SD) CLABSI ratio was 0.54 (0.56), patient satisfaction with physician and nurse communication were 80.2% (4.4%) and 77.3% (4.9%), respectively; 70% (9.1%) of patients recommended a hospital and 68.8% (8.0%) rated a hospital 9 or 10 (on a 1–10 scale). Over 4 years, CLABSI scores decreased each year (-0.02, 95% CI = -0.03 to -0.01) while satisfaction scores increased (physicians: 0.16, 95% CI = 0.12 to 0.19; nurses: 0.56, 95% CI = 0.52-0.60; hospital recommendation:0.18, 95% CI = 0.12-0.23; hospital rating: 0.56, 95% CI = 0.50-0.62). In adjusted models, higher CLABSI ratios were associated with lower satisfaction with physician (-0.09, 95% CI = -0.17 to -0.01) and nurse (-0.12, 95% CI = -0.21 to -0.02) communication. In contrast, CLABSI ratios were not associated with hospital recommendation (-0.09, 95% CI = -0.22 to 0.04) or rating (-0.07, 95% CI = -0.21 to 0.06).

Conclusion. In this first longitudinal study of most hospitals in the United States, hospitals with higher CLABSI ratios had lower patient satisfaction with physician and nurse communication but not with hospital recommendation or rating.

Disclosures. All authors: No reported disclosures.

---

2098. Reduction of Central-Line-associated Bloodstream Infections Rates: Impact of Minimizing Blood Cultures from Central Lines

Nisreen Murad, MS, CIC; Ana C. Bardossey, MD; Ryan Shelters, BS; Eman Chami, MHA, CIC; Stephanie Schultsh, RN; Meredith Van Harn, MS and George Alangaden, MD, FIDSA; Henry Ford Health System, Detroit, Michigan, Infectious Diseases, Henry Ford Health System, Detroit, Michigan

Session: 234. Healthcare Epidemiology: Device-associated HAI's Saturday, October 6, 2018: 12:30 PM

Background. CLABSI surveillance at our institution indicated that a significant proportion of CLABSI had a positive blood culture drawn from central line (CL-BC) with corresponding negative BC done by venipuncture (VP-BC), suggesting possible CL contamination. The contribution of minimizing CL-BC on CLABSI rates remains unknown. This study evaluates the impact on CLABSI rates of reducing CL-BC in addition to standard CLABSI reduction strategies in adult intensive care units (ICUs).

Methods. The study was done from January 1, 2015 to August 31, 2017 in adult ICUs at a hospital with 164 ICU beds, in urban Detroit. Education initiatives to minimize CL-BC were implemented in the ICU. Internal metrics VP-BC ratio (No. VP-BC/total BC in patients with CL) and CL-BC ratio (No. CL-BC/total BC in patients with CL) were used to monitor effectiveness. Compliance audits of CL maintenance were done, i.e., CL dressing intact, proper use of chlorhexidine dressing, site without redness or drainage. Monthly unit-specific CLABSI rates, CL utilization ratios (CL-UR), and VP-BC and CL-BC ratios were provided as feedback to the ICUs. CLABSI rates and number of contaminated BC were monitored. Trends of the various metrics were analyzed using Kendall Tau’s correlation for continuous variables. The relationship between CLABSI rate, VP-BC ratios and CL-UR were examined using Spearman’s correlation coefficient. Statistical significance was set at P < 0.05.

Results. During the study period in the ICU there were 148,762 patient-days and 82,153 CL days. Trends over time of the metrics are shown (figure). There was significant improvement noted in CLABSI rates, CL-UR and VP-BC rates (Table 1). There was a significant correlation between the CLABSI rates with VP-BC −0.395 (P value = 0.025) and a not significant correlation with CL-UR 0.278 (P value = 0.123). The number of contaminated blood cultures were 29, 3 and 0 in 2015, 2016 and 2017, respectively.

Conclusion. Minimizing BC obtained from CL can significantly contribute to reduction in CLABSI rates when used in combination with standard best care practices for CL insertion and maintenance.

Table 1: Correlation of Metrics Over Time

| Variable | Correlation with Time | P Value |
|----------|----------------------|---------|
| CLABSI rate | −0.260 | 0.036 |
| CL-UR | 0.520 | <0.001 |
| VP-BC ratio | 0.806 | <0.001 |
| CL care bundle compliance | −0.048 | 0.805 |

Disclosures. All authors: No reported disclosures.

---

2099. Catheter-related Staphylococcus aureus Bacteremia and Septic Thrombosis: The Role of Anticoagulation and Duration of Intravenous Antibiotic Therapy

Rita Wilson Dib, MD; Anne-Marie Chaftari, MD; Ray Y. Hackem, MD; Ying Jiang, MS; Dima Dandachi, MD and Isam Raad, MD; Department of Infectious Diseases, University of Texas MD Anderson Cancer Center, Houston, Texas, University of Texas MD Anderson Cancer Center, Houston, Texas, Department of Infectious Diseases, Infection Control and Employee Health, The University of Texas MD Anderson Cancer Center, Houston, Texas, Medicine, Section of Infectious Diseases, Baylor College of Medicine, Houston, Texas, Infectious Diseases, The University of Texas MD Anderson Cancer Center, Houston, Texas

Session: 234. Healthcare Epidemiology: Device-associated HAI's Saturday, October 6, 2018: 12:30 PM

Background. Catheter-related septic thrombosis is suspected in patients with persistent Central Line-associated Blood Stream Infection (CLABSI) after 72 hours of appropriate antimicrobial therapy. There are limited data outlining the characteristics of the disease and the adequate duration of antimicrobials. In addition, the role of anticoagulation in the management of septic thrombosis remains unclear. We herein