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 CLABSIIs, 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. The implementation of a vascular access algorithm including midlines may effectively reduce central line insertions and thereby decrease CLABSIIs through appropriate utilization of a lower risk device (midline). Further research into comparing additional risks, benefits, complications and costs of midline catheters and all styles of central venous catheters is warranted.

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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 HAIs 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 (CLABSIIs), 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 CLABSIIs 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 CLABSIIs 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, CLABSIIs data were available for 2,129 hospitals. The mean (SD) CLABSIIs 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, CLABSIIs scores decreased each year (−0.02, 95% CI = −0.03 to −0.01) while satisfaction scores increased (physicians: 0.16, 95% CI = 0.12–0.20; 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 CLABSIIs 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, CLABSIIs 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 CLABSIIs ratios had lower patient satisfaction with physician and nurse communication but not with hospital recommendation or rating.

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2098. Reduction of Central-Line-associated Bloodstream Infections Rates: Impact of Minimizing Blood Cultures from Central Lines Nizreen Murad, MS, CRC; Ana C. Bardowsky, MD; Ryan Shelters, BS; Eman Chami, MHA, CIC; Stephanie Schuldt, 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 HAIs Saturday, October 6, 2018: 12:30 PM

Background. CLABSI surveillance at our institution indicated that a significant proportion of CLABSIIs 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 CLABSIIs rates remains unknown. This study evaluates the impact on CLABSIIs rates of reducing CL-BC in addition to standard CLABSIIs 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 CLABSIIs rates, CL utilization ratios (CL-UR), and VP-BC and CL-BC ratios were provided as feedback to the ICUs. CLABSIIs 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 CLABSIIs 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 CLABSIIs rates, CL-UR and VP-BC rates (Table 1). There was a significant correlation between the CL-BC 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 CLABSIIs 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 |
|----------|-----------------------|---------|
| CLABSIIs rate | −0.260 | 0.036 |
| CL-UR ratio | 0.920 | <0.001 |
| VP-BC ratio | 0.806 | <0.001 |
| CL care bundle compliance | −0.048 | 0.805 |

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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. Hachem, MD; Ying Jiang, MS; Dima Dandachi, MD; and Issam 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 HAIs Saturday, October 6, 2018: 12:30 PM

Background. Catheter-related septic thrombosis is suspected in patients with persistent Central Line-associated Blood Stream Infection (CLABSIIs) 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...
studied the clinical characteristics of *Staphylococcus aureus* catheter-related septic thrombosis as well as the appropriate management and duration of treatment.

**Methods.** We conducted this retrospective study where we included patients with CLABSI due to *Staphylococcus aureus* who had a concomitant radiographic evidence of thrombosis at the level of catheter placement between the years 2005 and 2017. We collected pertinent patients’ medical history, recent presentations of treatment and outcome within 3 months of bacteremia onset. Failure was defined as persistence of signs and symptoms at 72 hours, persistence bacteremia at 48–96 hours, relapse, complications or overall mortality.

**Results.** A total of 153 patients were included. The median age was 55 years. Total relapse/recurrence rate was 8% and all-cause mortality within 3 months was 16%. We found no significant difference in overall outcome between patients who had deep vs. superficial thrombosis. Patients with superficial thrombosis were found to have higher rate of mortality (4% vs. 7%). Furthermore, eradication of deep thrombosis. Patients who received less than 28 days of intravascular antibiotic therapy had higher all-cause mortality (31 vs. 5% *P* = 0.001). A multivariate logistic regression analysis identified two independent predictors of treatment failure: presence in the cohort and any preceding their illness (OR = 2.14; 95% confidence interval (CI) = 1.08–4.99, *P* = 0.034) and not receiving anticoagulation (OR = 0.24, 95% CI = 0.11–0.54, *P* < 0.001).

**Conclusions.** Intravenous antimicrobial therapy for 28 days or longer carries a survival advantage over shorter duration therapy and anticoagulation as an adjunctive treatment is an independent predictor of successful antimicrobial therapy.

**Disclosures.** 1. Raad, The University of Texas MD Anderson Cancer Center: Shareholder, Licensing agreement or royalty. The University of Texas MD Anderson Cancer Center: Shareholder; Dr. Raad, a co-inventor of the Nitroglycerin-Citrate-Ethanol catheter lock solution technology which is owned by the University of Texas MD Anderson Cancer Center (UTMDACC) and has been licensed to Novel Anti-Infective Technologies LLC, in which UTMDACC and Licensing agreement or royalty.

2100. Nitroglycerin-Citrate-Ethanol Catheter Lock Solution Is Highly Effective in Eradicating Candida auris Biofilms

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**Background.** Blood stream infections due to *Candida auris* is a significant public health concern due to increased patient mortality, frequent misidentification, and high health concern due to increased patient mortality, frequent misidentification, and high rate of pulmonary complications (25% vs. 6%; *P* = 0.002) and 0.008, respectively). However, Caspofungin was significantly more effective in eradicating *C. auris* biofilm, but failed to do so in the radiology cohort (214; 97.7%, n = 3 missing) compared with chlorhexidine for radiology infections (214; 97.7%, n = 3 missing) compared with chlorhexidine for radiology infections (214; 97.7%, n = 3 missing) compared with chlorhexidine for radiology infections (214; 97.7%, n = 3 missing) compared with chlorhexidine for radiology infections (214; 97.7%, n = 3 missing) compared with chlorhexidine for radiology infections (214; 97.7%, n = 3 missing). CRIs occurred in 4 (4.2%) of the vascular cohort and 8 (3.6%) of radiology cohort (95 CI = 0.11–0.54, *P* = 0.05).

**Conclusions.** Rates of CRIs complicating CVAD procedures were similar in a vascular cohort where most received antibiotic prophylaxis, and in a radiology cohort where antibiotic prophylaxis was rarely used. There was no evidence to support antibiotic prophylaxis in prevention of CRIs, although choice of skin preparation and other factors may have confounded findings.

**Disclosures.** All authors: No reported disclosures.

2102. Peripherally Inserted Central Catheter (PICC) Placement: Indications and Financial Impact

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**Background.** Although PICCs are important for venous access, they pose risk of infection, venous thrombosis, and are costlier relative to other forms of vascular access. We conducted a preliminary quality improvement study to assess the indications for PICCs placed at our institution and to determine the associated healthcare cost.

**Methods.** We obtained data on all PICCs placed by the vascular access team over a representative 2-month period (November and December 2017) at Allegheny General Hospital. Indications entered during order entry for PICC placement were collected. Additionally, chart for all central line-associated bloodstream infections (CLABSIs) in 2017 were reviewed to determine the number of events where PICC may have been implicated. We calculated the cost incurred for PICC placement and that for treating infection in PICC-associated CLABSIs. The cost of each PICC insertion is about $4,700 and that of each CLABSI approximates $25,000.

**Results.** A total of 451 PICCs were inserted over the 2-month period. Documented indications for PICC insertion included: “poor venous access” (92.6%, 92.6%, 92.6%, 92.6%, 92.6%), “receiving chemotherapy” (92.6%, 92.6%, 92.6%, 92.6%, 92.6%) or other forms of vascular access.

**Conclusion.** We obtained data on all PICCs placed by the vascular access team over a representative 2-month period (November and December 2017) at Allegheny General Hospital. Indications entered during order entry for PICC placement were collected. Additionally, chart for all central line-associated bloodstream infections (CLABSIs) in 2017 were reviewed to determine the number of events where PICC may have been implicated. We calculated the cost incurred for PICC placement and that for treating infection in PICC-associated CLABSIs. The cost of each PICC insertion is about $4,700 and that of each CLABSI approximates $25,000.

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