Results. The median age of 824 patients with documented CAUTI was 54 years (IQR = [33–72 years]) and 542 cases (65.8%) were females. MDR germs were found in 372 cases (45.1%). Multivariate analysis showed that aged ≥ 70 years (Adjusted OR = 2.5; 95% CI = [1.8–3.5]), diabetes (adjusted OR = 1.65; 95% CI = [1.19–2.3]), history of urinary tract surgery in the last past 12 months (adjusted OR = 1.22; 95% CI = [1.22–1.7]) and previous antimicrobial therapy in the last past 3 months (adjusted OR = 4.6; 95% CI = [3–7]) were the independent risk factors of MDR in CAUTI. The results of Hosmer-Lemeshow chi-squared testing (χ2 = 3.4; P = 0.49) were indicative of good calibration of the model. At a cut-off of 0.22, the score had an AUROC of 0.71, a good sensitivity (70.5%) but a lower specificity (60%), a PPV of 60%, an NPV of 70% and an overall diagnostic accuracy of 65%. When the cutoff was raised to 0.6, the sensitivity dropped to 43% and the specificity increased to 85%.

Conclusion. Our study provided an insight into the clinical predictors of MDR in CAUTI. We developed a novel scoring system that can reliably identify patients likely to be harboring MDR uro-pathogens on hospital admission.

Disclosures. All authors: No reported disclosures.

2115. A Successful Bundled Approach to Decrease Catheter-Associated Urinary Tract Infections in a Community Hospital

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Background. Hospital acquired catheter-associated urinary tract infection (CAUTI) is a frequent occurrence in the healthcare setting. There is a known association between catheter utilization and incidence of CAUTI.

Methods. We implemented a bundled and step-wise approach to attempt decrease of urinary catheter usage in our institution, a large community hospital with a robust infection prevention department. We hypothesized that decreasing the catheter usage will decrease the incidence of CAUTI. Starting first quarter of 2014 we implemented order sets that prioritized non-invasive urinary management methods such as condom catheters over the use of indwelling urinary catheters; these also included orders to aid in bladder retraining after catheter removal, with very clear and limited indications for urinary catheter use. We continued these efforts into each catheter lumen after HD. National Healthcare Safety Network (NHSN) criteria were used to define CRB. Retrospective chart review was done in HD-CRB cases for <2 weeks are most often infected extraluminally. ALT is unlikely to have any impact on non-infectious complications; whereas the CAUTI rate remained on a low level. The next step is planning the national rollout of both the surveillance module and the intervention bundle.

Disclosures. All authors: No reported disclosures.

2117. Catheter-related Bacteremia in Hemodialysis Patients on Antibiotic Lock Therapy: Are Antibiotic Locks Ineffective?

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Session: 234. Healthcare Epidemiology: Device-associated HAIs
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Background. Antibiotic lock therapy (ALT) is used to prevent catheter-related bacteremia (CRB) associated with non-tunneled hemodialysis (HD) catheters. ALT exerts its action by preventing intraluminal biofilm formation, a common source of infection with long-term catheters. However, catheters that are in place for <2 weeks are most often infected extraluminally. ALT is unlikely to have any impact on extraluminal infection. Our study aims to define the characteristics of CRB in HD patients receiving prophylactic ALT (HD-ALP patients) and investigate for possible lack of efficacy of ALT

Methods. ALT project was implemented in all HD patients with tuned/non-tunneled catheters in 3 tertiary care hospitals in Detroit from June 2016 to October 2017. ALT containing Gentamycin (5 mg/ml) was used for tunneled hemodialysis catheters on dialysis machines.

Results. Out of 3,884 ALT,13 CRB were recorded (eight tunneled and five non tunnelled). Nine of 13 patients received all ALT doses. Median duration from catheter insertion to CRB occurrence in these nine patients was 7 days (range 2-380 days) with six (67%) patients having catheter duration of ≤8 days. Three of these HD-CRB patients had catheters longer than 8 days (154, 194 and 380 days, respectively). The mean time to development of CRB after beginning ALT were 3.22 (SD = 1.85). The three patients with prolonged duration of catheterization had catheters inserted long before the ALT project was implemented. Additional details of 3 HD-CRB patients are as follows: Mean age 61 years (±10.7), 54% were male, 77% had catheters removed or replaced, one patient died. Most predominating organisms isolated were Staphylococcus aureus 6 (4/6 methicillin-resistant) and Pseudomonas aeruginosa 3. Two of 14 isolated organisms had gentamicin resistance.

Conclusion. A large proportion of ALT patients had catheters for short duration before CRB episode, therefore an intraluminal source of bacteremia due to biofilm formation is unlikely to have occurred. In those HD-ALP patients with long periods of catheterization, ALT duration might not have been sufficient to eradicate biofilm. Therefore, CRB occurrence in our population is probably not due to ALT failure.

Disclosures. All authors: No reported disclosures.

2118. Healthcare-Associated Infection in Intensive Care Patients Infected and Non-infected by Human Immunodeficiency Virus

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Session: 234. Healthcare Epidemiology: Device-associated HAIs
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Background. In acute care hospitals, urinary catheters are often inserted and kept for a long time. Proper indications, and may lead to catheter-related urinary tract infection (CAUTI) and various non-infectious complications. In this pilot study, we attempted to decrease urinary catheterization via an awareness campaign and an intervention bundle, consisting of (1) an indication list for urinary catheterization, (2) daily evaluation of the need for ongoing catheterization, and (3) education on proper catheter insertion and maintenance.

Methods. We conducted a before/after intervention study in seven small, mid-size and academic hospitals distributed across Switzerland. After a 3-month pre-intervention surveillance, the intervention period started with a workshop for local project leaders who then implemented the intervention bundle. During the 3-month post-intervention surveillance, the primary outcome was catheter utilization; secondary outcomes were CAUTI, non-infectious outcomes, and process indicators (proportion of indicated catheters, frequency of catheter evaluation).

Results. We analyzed data on 1280 mostly general medical or surgical patients, 13,171 of which pre-intervention (August–October 2016) and 12,709 post-intervention (August–October 2017). Catheter utilization dropped from 23.7% to 21.0% [adjusted odds ratio 0.9 (95% confidence interval, CI, 0.84–0.96); P = 0.001]. There were 1.03 CAUTI per 1,000 catheter-days (before) and 1.33 (after) [aOR 1.2 (0.6–2.4); P = 0.6]. Non-infectious complications decreased slightly from 39.4 to 35.4 events per 1,000 catheter-days [aOR 0.7 (0.7–1.7); P = 0.2]. The proportion of catheters with a documented proper indication went from 74.5% to 90.0% [aOR 4.1 (3.35–4.95); P < 0.001]. Reevaluations increased from 167 to 623 per 1,000 catheter-days [aOR 3.12 (2.92–3.36); P < 0.001].

Conclusion. In this before/after intervention study, a simple bundle of 3 evidence-based measures reduced catheter utilization and led to increases in indicated catheters and daily evaluations. The intervention had a small impact on non-infectious complications, whereas the CAUTI rate remained on a low level. The next step is planning the national rollout of both the surveillance module and the intervention bundle.

Disclosures. All authors: No reported disclosures.
Background. Healthcare-associated infections (HAI) are related with high mortality and emergence of multidrug-resistant (MDR) organisms, mainly in critical care patients. Human immunodeficiency virus (HIV) infection is a frequent cause of intensive care unit (ICU) admission, but data about HAI in this population is scarce. We aimed to evaluate HAI mortality in patients infected and non-infected by HIV in an ICU in a Brazilian public hospital and describe their epidemiological and microbiological characteristics.

Methods. This retrospective cohort included patients admitted in an Infectious Diseases ICU from July 2013 to December 2017 who acquired HAI. A database was created using SPSS and multivariate analysis was performed. Primary outcome was 30-day mortality after onset of infection. Secondary outcomes were infection caused by MDR organisms and device-associated HAI.

Results. During the study period, 77 ICU-patients (25 HIV and 52 non-HIV) acquired 106 HAI. HIV-patients were younger than non-HIV (45 vs. 58 years old, \( P = 0.002 \)) and had more respiratory distress at admission (60.0% vs. 34.6%, \( P = 0.035 \)). There was a high 30-day mortality and no difference among groups (HIV 52.0% vs. non-HIV 54.9%, \( P = 0.812 \)), which was confirmed after adjusting for age, sequential organ failure assessment (SOFA) score in the day of HAI, MDR infection and more than one HAI. Central-line associated bloodstream infections (CLABSI) was the most frequent HAI in general population (36.9%), moreover, ventilator-associated pneumonia (VAP) was more frequent in HIV group (45.2% vs. 26.7%, \( P = 0.063 \)), with similar period of invasive devices. Enterococcus faecalis was the most frequent cause of CLABSI in HIV group (30.0%), while Klebsiella pneumoniae was in non-HIV group (28.1%). Acinetobacter baumannii and K. pneumoniae (each 35.7%) were the predominant agents of VAP in HIV group, as Pseudomonas aeruginosa (20.0%) was in non-HIV group. Although there was a high frequency of HAI caused by MDR organisms, there was no difference among the groups (HIV 77.8% vs. non-HIV 64.3%, \( P = 0.214 \)).

Conclusion. HIV was not associated with higher mortality in critical care patients who acquired HAI. VAP was more frequent in HIV patients, probably due to higher prevalence of respiratory conditions at admission. Infection by HIV does not increase the chance to acquire an HAI by MDR organism.

Disclosures. All authors: No reported disclosures.

2119. Reducing Catheter-Associated Urinary Tract Infections Using an Evidence-Based Urine Culture Algorithm at an Academic Medical Center

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

Background. Catheter-associated urinary tract infections (CAUTIs) are among the most common hospital-acquired infections. CAUTIs have gained attention due to public reporting and reimbursement implications. Urine cultures are often obtained for inappropriate indications, which can falsely elevate CAUTI rates. Our objective was to determine the impact of a new evidence-based urine culture algorithm on our CAUTI rates.

Methods. This quality improvement project was implemented at a 1,541 bed academic medical center in New Haven, CT. Our CAUTI performance improvement (PD) team, a collaboration between nurses, infectious disease physicians and urologists, developed a urine culture algorithm for catheterized patients in October 2017. This algorithm recommends directed evaluation of fever in a catheterized patient based on Infectious Disease Society of America guidelines (Figure 1). Education about appropriate culturing and catheter utilization was initiated November 2017, the algorithm was approved on December 27, 2017, and included in the electronic medical record February 2018. The incidence rates (IR) of CAUTI per 1,000 catheter days, urine cultures ordered, urinary catheter days and central line-associated bloodstream infection (CLABSI) rates were compared for the quarter pre- and post-algorithm implementation.

Results. Our CAUTI IR decreased by >40% from 1.4 to 0.8 per 1,000 CD for the quarters pre- and post-algorithm implementation, respectively (Figure 2). Average monthly urine cultures ordered in catheterized patients decreased by 28% from 120 (fourth quarter, 2017) to 84 post algorithm implementation (first quarter, 2018, Figure 3). The average monthly catheter days decreased by 1.5% (4,409 days in fourth quarter, 2017 to 4,342 in first quarter, 2018). Despite the decrease in urine cultures ordered, we did not see a compensatory increase in CLABSI rates in CLABSI rates during the post implementation period.

Conclusion. Thoughtful culturing through algorithm-directed evaluation of fever based on signs and symptoms combined with staff education about culturing and catheter utilization led to reduction in unnecessary urine culture orders and CAUTIs. Our next steps are to evaluate the impact of this algorithm on antibiotic utilization and C. difficile rates, and examine the sustainability of these interventions over time.