1160. CAUTIs are the Most Common Type of Healthcare-Associated Infection. In an Effort to Decrease CAUTI Rates Through Proactive Prevention, We Sought to Develop a Weighted Model of CAUTI Risk Factors. The Final Set of Risk Factors Jointly Predicting CAUTI Were ADL Dependent, CVA, Catheter Replacement Within 7 days, and Catheterization Duration ≥5. We Have Defined Contemporary Weighted Risk Factors for CAUTI and Intend to Utilize These to Deploy a Tiered Approach Where Patients with Risk Factors Will Receive Advanced in Addition to Basic Preventive Efforts

Neha Nanda, MD[1]; Meline Aleksanyan, MHA Candidate[2]; [1]Keck Medicine of USC, San Marino, California; [2]Keck Hospital of USC, Glendale, California

Session: 141. HAI, Device-Associated: CAUTI

Friday, October 4, 2019: 12:15 PM

Background. Catheter-associated urinary tract infections (CAUTI) are the most common type of healthcare-associated infection. In an effort to decrease CAUTI rates through proactive prevention, we sought to develop a weighted model of CAUTI risk factors in our patient population.

Methods. A retrospective case–control study was conducted to identify potential CAUTI risk factors in a 401-bed, acute care, tertiary academic facility. Data were collected through chart review of CAUTI cases between January 2014 and June 2018. Controls were catheterized patients who did not develop a CAUTI, and were selected based on the corresponding case event date (±7 days) and location. The case to control ratio was 1:2. A multivariable logistic regression was used to identify CAUTI risk factors by stepwise selection. All tests were 2-sided at a 0.05 significance level. All statistical analyses were performed using SAS 9.4.

Results. We reviewed 501 patients. The mean age was 62.7 years and 51% were female. The most common organisms in CAUTI cases (n = 167) were *Escherichia coli* (28.7%) and *Pseudomonas aeruginosa* (18.6%). Median catheterization duration for cases and controls was 8 and 5 days, respectively. Univariate logistic regression analyses revealed the following statistically significant risk factors: female, catheterization duration ≥5 days, ADL-dependent, cerebrovascular disease (CVA), nonoperating room procedure, catheter placement in operating room and history of malignancy. The final set of risk factors jointly predicting CAUTI included ADL-dependent (OR 1.69), CVA (OR 7.3), catheter replacement within 7 days (OR 1.85), and catheterization duration ≥5 (OR 2.1). The final model's AUC was 0.72. Risk factors were scored using β coefficient from the final model. The highest score attainable was 20 with CVA receiving the maximum weight. The risk score's ability to classify infection was measured by AUC of 0.60.

Conclusion. In our study, we have defined contemporary weighted risk factors associated with CAUTI. We intend to utilize these findings to deploy a tiered approach where patients with risk factors will receive 'advanced' in addition to 'basic' preventive efforts. Additionally, our risk score model will allow for prioritizing efforts.

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

1161. Frequency of Urine Cultures, their Positivity, and CAUTI: Analysis of a Large Health System

Mohamad G. Fakih, MD, MPH[1]; Lisa K. Sturm, MPH, CIC, FAPIC[1]; Karl Saake, BS, MPH[1]; Florian Daragjati, PharmD[1]; Danielle Sebastian, PharmD[1]; Angelo Bufalino, PhD[2]; [1]Ascension, Grosse Pointe Woods, Michigan; [2]Ascension Clinical Research Institute, St. Louis, Missouri

Session: 141. HAI, Device-Associated: CAUTI

Friday, October 4, 2019: 12:15 PM

Background. Hospitalized patients with bacteriuria are often identified based on positive urine cultures during the workup of urinary tract infection (UTI). However, the frequency of obtaining urine cultures varies between hospitals and may affect the detection of asymptomatic bacteriuria and symptomatic UTI.

Methods. We evaluated the frequency of urine cultures, their positivity and any association to CAUTI in the inpatient setting (excluding emergency department) of 53 hospitals during 2017 and 2018. Total inpatient urine cultures, positive urine cultures and positive urine cultures identified >2 days post-admission were normalized to patient-days. In addition, the rates of positive urine cultures >2 days post-admission were compared per institution to the corresponding CAUTI SIR. We compared small (75,000 patient-days per year).

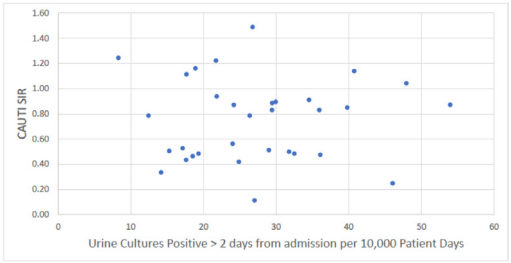
Results. A total of 238,451 urine cultures were obtained in 53 hospitals over a period of 2 years with bacteriuria detected in 97,138 (40.74%). Hospitals varied in how often urine cultures were obtained, the % of positive urine cultures, and positive urine cultures per 10,000 patient-days (table). Medium size hospitals had significantly higher number of cultures per 10,000 compared with large hospitals (mean difference= 191; P = 0.006), while % positives were significantly lower (mean difference= -8.4; P = 0.02). There was no significant association between the rate of positive urine cultures >2 days after admission and CAUTI SIR (figure).

Conclusion. Our findings underscore the importance of addressing appropriate urine culturing as part of the infection workup in the hospital setting. A lower detection of bacteriuria after 2 days of admission did not necessarily result in a reduction of CAUTI, reflecting the importance of working on a better identification of patients likely to have a urinary tract infection.

Table: Frequency of Urine Cultures, % positive, positivity > 2 days from admission and CAUTI SIR

	Hospitals			
	Small (n=21)	Medium (n=17)	Large (n=15)	All (n=53)
Median (range) cultures per 10,000 patient-days	492 (116-1,744)	600 (258-976)	330 (181-759)	449 (116-1,744)
Median (range) % positive cultures	46% (28.1-68.5)	33.7% (23.4-54.1)	44.5% (33.9-62.7)	43.3 (23.4-68.5)
Median (range) cultures positive per 10,000 patient-days	224 (40-490)	189 (123-272)	151 (93-295)	196 (40-490)
Median (range) positive cultures >2 days after admission per 10,000 patient-days	10.6 (2.4-78.8)	27 (8.3-47.9)	24.2 (12.4-53.9)	21.7 (2.4-78.8)
Median (range) CAUTI Standardized Infection Ratio	0.00 (0-4.54)	0.89 (0.11-1.49)	0.79 (0.43-1.14)	0.56 (0-4.54)

Figure: The Relation between positive cultures identified >2 days from admission and CAUTI SIR in medium and large hospitals



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

1162. An Evaluation of Metrics for Catheter-Associated Urinary Tract Infections (CAUTIs): A Statewide Comparison

Dana Pepe, MD, MPH[1]; Meghan Maloney, MPH[2]; Vivian Leung, MD[3]; Adora Harizaj, MPH[3]; David Banach, MD[4]; Louise Dembry, MD, MS, MBA[5]; Louise Dembry, MD, MS, MBA[5]; Sonali D. Advani, MBBS, MPH[1]; [1]Yale School of Medicine, New Haven, Connecticut; [2]Connecticut Department of Health, Hartford, Connecticut; [3]Connecticut Department of Public Health, Hartford, Connecticut; [4]UConn Health, Farmington, Connecticut; [5]Yale University, New Haven, Connecticut

Session: 141. HAI, Device-Associated: CAUTI

Friday, October 4, 2019: 12:15 PM

Background. The Standardized Infection Ratio (SIR) is a metric used to gauge catheter-associated urinary tract infection (CAUTI) prevention, both locally and nationally. The device utilization ratio (DUR) is a process metric that captures catheter harm. More recently, the cumulative attributable difference (CAD) was introduced, which identifies the number of excess infections that need to be prevented to reach the desired goal. Our objective was to evaluate these metrics across all acute care hospitals in Connecticut (CT) by facility size.

Methods. A CAUTI Targeted Assessment for Prevention (TAP) Report for acute care hospitals across CT was generated from 1/1/2018 to December 31/2018, using the National Healthcare Safety Network (NHSN) database. CAUTI events, SIR, DUR, and CAD were compared across all hospitals. The SIR goal of 0.75 was used to calculate the CAD. Hospitals were stratified into large (>425 beds), medium (250 to 424 beds), and small (<249 beds) based on the Healthcare Cost and Utilization Project NIS Description of Data Elements, Agency for Healthcare Research and Quality for urban hospitals in the northeast region.

Results. A comparison of CAUTI metrics for 29 acute care hospitals across CT is shown in Table 1. Median SIR and DUR were 0.97, 1.02, 0.77, and 22%, 14%, 14.5% for large, medium and small hospitals, respectively. Of the 20 small hospitals, SIR could not be calculated for 5 hospitals, while 2 hospitals had an SIR = 0, as they had no reported infections. Median CAD for large, medium and small hospitals was 6.17, 1.3 and 0.25, respectively. Of note, 40% of small hospitals (J – CC, as in Table 1) had a negative CAD. Interestingly, 5 of these 8 hospitals with a negative CAD had a DUR higher than 16%.

Conclusion. Based on CT hospital data, metrics like CAD and SIR may be more suitable for larger hospitals or hospitals with higher CAUTI events, whereas DUR may be a more useful metric for smaller hospitals or hospitals with rare events. Hospitals with high SIR and low DUR may represent a population with high-risk catheter use, poor catheter care or higher rates of urine culturing. On the other hand, hospitals with high DUR and low SIR may represent low-risk populations, better catheter care practices or lower rates of urine culturing. Ultimately, we need a combination of metrics to measure preventable catheter harm.

Table 1: Comparison of CAUTI Metrics across Acute Care Hospitals in Connecticut

Hospital size	CAUTI (events)	SIR	DUR (%)	CAD
Large Hospitals (>425 beds)				
A	46	1	22	12
B	19	1.1	25	6.2
C	51	0.8	14	1.7
Medium Hospitals (250-424 beds)				
D	14	1.7	17	8
E	13	1	13	3.7
F	7	1	12	1.9
G	5	0.9	8	0.7
H	10	0.8	20	0.1
I	8	0.7	15	-0.1
Small Hospitals (<249 beds)				
J	9	1.8	15	5.2
K	8	1.9	11	4.8
L	8	1.3	18	3.3
M	3	.	12	2.6
N	2	.	13	1.5
O	1	.	9	0.8
P	1	.	15	0.7
Q	3	0.9	9	0.5
R	1	.	14	0.5
S	4	0.8	16	0.3
T	1	1	26	0.2
U	1	0.9	10	0.1
V	3	0.7	9	-0.2
W	0	0	4	-0.8
X	4	0.6	17	-1
Y	2	0.5	22	-1.2
Z	2	0.4	17	-1.4
AA	1	0.3	9	-1.8
BB	0	0	23	-2.1
CC	2	0.4	20	-2.1

CAUTI = Catheter Associated Urinary Tract Infection, SIR = Standardized Infection Ratio,
DUR = Device Utilization Ratio, CAD = Cumulative Attributable Difference,
"." = SIR could not be calculated