Table 1. Characteristics and comorbidities of female catheterized patients admitted to a medical service before (PRE) and after (POST) PureWick implementation.

Characteristic	PRE (n=261)	POST (n=605)	p-value
Age, year, median (IQR)	70 (53, 81)	72.0 (59, 82)	0.294
BMI, median (IQR)	24.8 (21.4, 29.1)	24.9 (21.3, 30.5)	0.831
Hospital LOS, days, median (IQR)	5 (3, 8.5)	7 (4, 12)	0.001
Indwelling catheter days, median (IQR)	2 (1, 5)	3 (1, 7)	<0.001
PureWick catheter days, median (IQR)	N/A	2 (1, 5)	N/A
Indwelling urinary catheter, n (%)	261 (100%)	412 (68.1%)	<0.001
PureWick, n (%)	N/A	296 (48.9%)	N/A
Medical comorbidities, n (%)			
Diabetes	95 (36.4%)	205 (33.9%)	0.476
CHF	51 (19.5%)	131 (21.7%)	0.484
ESRD	19 (7.3%)	36 (6.0%)	0.462
Dementia	29 (11.1%)	65 (10.7%)	0.873
Current malignancy	60 (23.0%)	126 (20.8%)	0.477
HIV infection	1 (0.4%)	2 (0.3%)	0.904

BMI = body mass index, LOS = length of stay, IQR = interquartile range, CHF = congestive heart failure, ESRD = end stage renal disease, HIV = human immunodeficiency virus

Table 2. Urinary tract infection rates of female catheterized patients PRE and POST PureWick implementation.

Characteristic	PRE (n=261)	POST (n=605)	p-value
Urine culture, n (%)	114 (43.7%)	354 (58.5%)	<0.001
CAUTI, n (*)	4 (4.1)	38 (11.8)	0.003
PAUTI, n (*)	N/A	15 (11.3)	N/A
UTI, n (**)	36 (19.1)	97 (14.12)	0.410

CAUTI = catheter-associated urinary tract infection, PAUTI = PureWick-associated UTI, UTI = urinary tract infection
** CAUTI and PAUTI rate are presented as number of infections per 1,000 catheter days.*
*** UTI rate is presented as number of infections per 1,000 patient days.*

Table 3. Characteristics of hospitalized female patients admitted to a medical service who received a PureWick catheter.

Characteristic	POST (n=296)
Age, year, median (IQR)	75.0 (63, 85)
BMI, median (IQR)	24.6 (21.5, 30.0)
Hospital LOS, days, median (IQR)	6 (3, 11)
Indwelling catheter days, median (IQR)	2 (1, 5)
PureWick catheter days, median (IQR)	2 (1, 5)
Indwelling urinary catheter, n (%)	107 (36.1%)
PureWick, n (%)	296 (100%)
Indication for catheterization, n (%)	
Urinary retention	41 (13.9%)
Strict ins/outs	168 (56.8%)
Incontinence	64 (21.6%)
Surgery	1 (0.3%)
Management of immobilized patient	12 (4.1%)
Comfort	10 (3.4%)
Provider service ordering catheter, n (%)	
Emergency medicine	2 (0.7%)
Family medicine	14 (4.7%)
Medicine	236 (79.7%)
Neurology	44 (14.9%)

IQR = interquartile range, BMI = body mass index, LOS = length of stay

Conclusion. While EUCDs might appear to be a promising alternative to IUCs for female patients, this single center pre/post analysis found that both the median number of IUC days and the CAUTI rate increased after introduction of a single EUCD. This may be related to selection bias, with EUCDs being ordered for patients who would not have otherwise received an IUC. Further research is needed to clarify if female EUCDs can be effective in decreasing IUC days and/or CAUTI rates prior to any widespread adoption.

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806. Decreasing Central Line-associated Bloodstream Infections Through Quality Improvement Initiative on a High Acuity Transplant Unit

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Session: P-33. HAI: Device-Associated (CLABSI, CAUTI, VAP)

Background. Central line-associated blood stream infections (CLABSI) have a significant impact on mortality, morbidity and length of stay. Data collected by the Infection Prevention Department revealed progressive increases in the rate of CLABSI on an Abdominal Transplant Unit. Recognizing a drift from best practice, front line staff, the IP team and vascular access specialists, collaborated to identify opportunities for improving care of patients with vascular access devices.

Methods. An increase in CLABSI rate was observed on the Abdominal Transplant Unit beginning in 2016. An initiative began in 2017 to evaluate whether CLABSI rate reduction was sustainable for at least 1 year and to identify key determinants of this sustainability. Interventions were aimed at infection prevention best practices, care standardization, and team-based monitoring. Interventions included (1) re-education on CLABSI reduction, (2) two RN dressing changes to validate practice during central line dressing change, (3) blood draws from central lines (during non-emergent situations) had to be approved by nurse manager, physician lead and transplant quality physician, (4) CLABSI prevention nurses were chosen as designated phlebotomists for patients with prior approval, (5) daily line review was performed to address line days, indication of line (remove latent lines) and plan of care (transition to permanent access) and this information was shared with the unit physician lead and transplant quality team. Assuring compliance with audits and timely feedback with clinician accountability were vital with compliance with best practices.

Results.

Year	Number of Infections	Infection Rate
2017 (Interventions started 4th quarter)	11	4.825
2018	9	3.294
2019	4	1.533
2020 (Quarter 1-2)	0	0

Conclusion: During the intervention, CLABSI infection rates dropped from 4.825 to 1.533 in 1,000 CVC days. The sustainability plan for this program is to continue line audits, assessing line necessity and review the effectiveness of the initiatives, review all new CLABSI data with staff and implement new changes as necessary. Joint, ongoing multidisciplinary collaboration is essential to reduce CLABSIs and optimize quality in a challenging, high-acuity patient population.

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

807. Effect of Inter-Hospital Transfer on Nosocomial Infection Rates in Patients Receiving Extracorporeal Membrane Oxygenation

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Session: P-33. HAI: Device-Associated (CLABSI, CAUTI, VAP)

Background. Extracorporeal Oxygenation (ECMO) has been increasingly used as a life support modality for cardiac and pulmonary failure. Due to improved survival in patients treated in high volume ECMO centers, inter-hospital transport of these critically ill patients is on the rise. These patients may be transported via ambulance locally, or by aircraft over long distances. However, potential risks of nosocomial infectious complications associated with transfers has not been reported. We evaluated the impact of transfers on nosocomial infections for patients who received ECMO at Brooke Army Medical Center (BAMC).

Methods. All patients who received ECMO for ≥48 hours at BAMC between May 2012 and October 2019 were included. Chart review was performed to determine transport status, infectious complications while on ECMO, and antimicrobial susceptibility of isolated organisms. Statistical analyses were performed using Chi-squared, Fisher's exact, or Mann-Whitney U tests as appropriate. Factors associated with nosocomial infections were evaluated by multivariate logistic regression.

Results. Compared to patients who were cannulated locally (n=33), patients who underwent cannulation at referral facility and inter-hospital transfer (n=76) had no difference in infections per 1000 ECMO days (33.1 vs. 30.5, p=0.74) or in infections with multidrug resistant organisms (MDRO) (50% vs. 55%, p=1). Of transferred patients, those transferred by aircraft (n=11) had no difference in infection rate (22.4 vs. 31.8 per 1000 ECMO days, p= 0.39) or MDRO incidence (52% vs 75%, p=0.61) compared to those only transferred by ambulance (n=65). Multivariate analysis showed the greatest risk factor for nosocomial infection was time on ECMO (OR 12.2 for longest tertile time on ECMO vs. shortest tertile, p=0.0001); transport was not significantly associated with infection (OR 2.1, p=0.06).

Nosocomial infection rate by site of ECMO cannulation

	Local Cannulation (n=33)	Inter-hospital Transfer (n=76)	P-value
Male	25 (75%)	54 (71%)	0.61
Median age	43 (33-59)	39 (30-51.5)	0.11
Pre-ECMO Hospital Days	4 (0-12)	4 (2-9.25)	0.53
Median time on ECMO (days)	6.7 (3.9-13.6)	10.9 (5.0-23.7)	0.04
Hospital Length of Stay (days)	29 (16-50)	21 (13.75-44.25)	0.46
Survived to discharge	20 (61%)	60 (79%)	0.05
Admission Diagnosis			0.01
Cardiac Diagnosis	5 (15%)	8 (11%)	
Medical Diagnosis	16 (48%)	58 (76%)	
Trauma/Surgical Diagnosis	12 (36%)	10 (13%)	
Any Infection while on ECMO	9 (27%)	33 (44%)	0.10
Total Infections per 1000 ECMO days	33.1	30.5	0.74
Blood Stream Infections (BSI) per 1000 ECMO days	12.0	5.5	0.29
Respiratory Infections (RI) per 1000 ECMO days	13.5	19.3	0.41
Skin and Soft Tissue Infections per 1000 ECMO days	2.1	8.2	0.07
Urinary Tract Infections per 1000 ECMO days	0	2.1	0.38
Median days to BSI	6 (3-9)	20 (7-22)	0.23
Median days to RI	2 (1-4.5)	4 (1-17.5)	0.25
Any MDRO	4/8 (50%)	17/31 (55%)	1

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

Conclusion. This study did not find a significant difference in nosocomial infection rate or recovery of MDROs between transported and non-transported patients on ECMO, regardless of transport modality. This study suggests that transportation is not the primary driver of nosocomial infections in this cohort.

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

808. Evaluating the Incidence of Bacteriuria in Female Patients Before and After Implementation of External Catheter Devices

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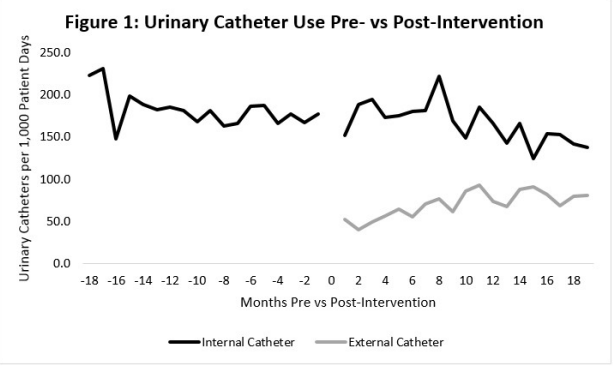
Session: P-33. HAI: Device-Associated (CLABSI, CAUTI, VAP)

Background. Bacteriuria associated with indwelling urinary catheters is commonly linked to inappropriate antibiotic use in hospitals. The use of external catheter devices (ECD) has increased in recent years to reduce bacteriuria risk in women, based on data in male patients. Currently no studies have shown a similar benefit in the female population.

Methods. This was a quasi-experimental study among adult female ICU patients with urinary catheters (indwelling or external) between 12/2015 – 5/2017 (pre-ECD) and 12/2017 – 6/2019 (post-ECD). The primary outcome was the incidence of positive urine cultures pre- vs post-intervention. An *a priori* subgroup patient-level analysis evaluated positive urine cultures and antibiotic use pre- vs post-intervention in medical and surgical ICU patients who had a urinalysis ordered in the presence of an indwelling or external urinary catheter. Antibiotic use was considered appropriate when prescribed in the presence of a positive urine culture, clinical signs and symptoms of UTI, and a UTI order indication.

Results. There were 4,640 patient ICU encounters during the study period; 2,201 pre- vs 2,439 post-intervention. Mean age was 59.2 (SD 15.4) years, median Elixhauser Score was 6 (IQR 4, 7), and there were no significant differences between groups. In the overall cohort, there was a decrease in the monthly rate of indwelling urinary catheter use pre- versus post- intervention (Figure 1) of 182/1,000 vs 166/1,000 patient days, P = 0.03. There was also a decrease in rate of positive urine cultures from pre- to post-intervention (38/1,000 vs 28/1,000 patient days, P = 0.004). Antibiotic days of therapy (DOTs) for UTI indication was similar in the pre- versus post-intervention groups with 1.9/1000 vs. 1.8 DOT/1,000 patient days (P = 0.7). In the subgroup of 210 patients (73 pre- vs 137 post-intervention) who underwent urinalysis, there was also a decrease in the proportion of positive urine cultures from pre- to post-intervention (42.5% vs. 24.3%; P = 0.007). Of patient receiving antibiotics for UTI indication, appropriateness was numerically higher post-intervention (9.1% vs. 31.6%; P = 0.21).



Conclusion. The use of external urinary catheters may be beneficial in reducing bacteriuria and related antibiotic use among female ICU patients.

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809. Modified Laboratory Reporting to Prevent Catheter-Associated Urinary Tract Infections (CAUTIs)

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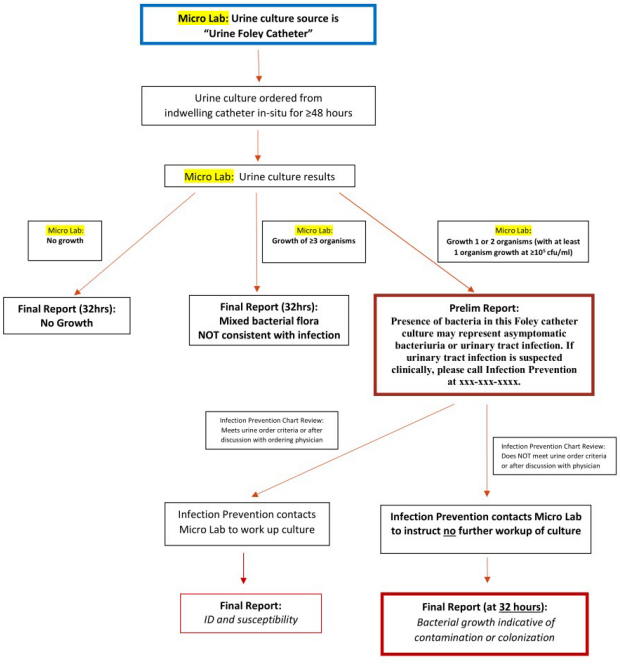
Session: P-33. HAI: Device-Associated (CLABSI, CAUTI, VAP)

Background. Catheter-associated urinary tract infections (CAUTIs) are among the most common healthcare-associated infections. Many patients at our institution with a CAUTI do not have signs or symptoms of infection and bacterial growth likely represents asymptomatic bacteriuria (ASB). As a result, we implemented a Modified Lab Workflow (MLW) focused on diagnostic stewardship to improve urine culture (UCx) reporting and prevent misclassification and unnecessary treatment of CAUTIs.

Methods. On Sep. 1, 2019, laboratory reporting of Foley UCx was modified according to the protocol in Figure 1. UCx results were divided into 3 groups: (1) no growth, (2) mixed bacterial flora (≥3 organisms) not consistent with infection or (3) growth of ≤2 organisms with at least 1 organism $\geq 10^5$ cfu/ml per National Healthcare Safety Network (NSHN) CAUTI definition. Group 3 UCx were resulted with instructions to the clinician (see Figure 1.). When requested, group 3 results were reviewed by Infection Prevention and released with organism identification and antibiotic susceptibility if it met Infectious Diseases Society of America (IDSA) CAUTI criteria. Otherwise they were resulted as: "Bacterial growth indicative of contamination or colonization."

Figure 1. Modified Laboratory Workflow for Reporting Urine Cultures from Foley Catheters

Figure 1. *Modified Laboratory Workflow for Reporting Urine Cultures from Foley Catheters*



Results. Between Sep. 1, 2019 to Mar. 1, 2020, a total of 134 UCx from catheterized patients were reviewed. Forty-two (31%) of UCx were from patients with a Foley in-situ ≥48 hours and processed through MLW; 92 UCx were from a Foley in place < 48 hours and excluded from the study. Of the 42 UCx processed via MLW, 16 (38%) were no growth and 7 (17%) had bacterial growth suggestive of contamination. For group 3, 19/42 (45%) had growth of significant bacteria but only 1(5%) met IDSA criteria for reporting. During the study, 6 additional CAUTIs were reported due to incorrect specimen labeling causing Foley urine specimens to subvert MLW.

Conclusion. During our study, we identified 1 CAUTI through apt MLW use. Seven total CAUTIs occurred (SIR=0.66); a majority due to incorrect UCx source labeling, resulting in missed MLW screening. Ten CAUTIs (SIR=0.97) were reported in the preceding 6 months. As part of a comprehensive CAUTI prevention program, a MLW can help reduce classification of ASB as a CAUTI. Education to providers on precise labeling of UCx source is a key component of a successful MLW.

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