

had urine cultures sent, of which 46 (7%) were positive. In all, 407 urine cultures (61.9%) were obtained by clean catch, 233 (35.4%) were obtained by urethral catheterization, 2 (0.3%) were obtained by Foley catheter, and 16 (2.4%) were unspecified. Among the 46 positive cultures, 32 (69.6%) had ≥ 10 WBC/HPF, and 55 (9.0%) of 612 negative cultures had ≥ 10 WBC/HPF. Of the 14 patients with positive urine cultures without pyuria, 8 had a contaminated sample or asymptomatic bacteriuria, 3 had urologic abnormalities, and 3 were infants aged <3 months. Of the 14 patients, 3 (21.4%) had a consistent clinical presentation for UTI and were treated with antibiotics: 2 were infants aged <3 months and 1 had urologic abnormalities. Using the ≥ 10 WBC/HPF threshold compared to 'true UTI,' sensitivity was 91.4%, specificity was 91.5%, positive predictive value was 36%, and NPV was 99.5%. Sensitivity and NPV increased to 100% when infants aged <3 months and urologic patients with positive urine culture were excluded. We estimated a cost saving of ~\$200,000 had reflexive testing been in place. **Conclusions:** A reflexive urine culture for specimens with ≥ 10 WBC/HPF would have reduced the number of urine cultures substantially because 571 (86.8%) of 658 urine cultures would not have been performed. To prevent missed diagnoses of UTI, infants aged <3 months and children with urologic abnormalities should be excluded from this diagnostic stewardship intervention.

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Presentation Type:

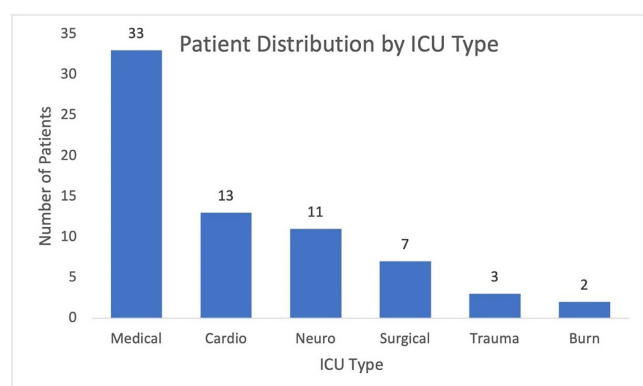
Poster Presentation - Poster Presentation

Subject Category: Diagnostic/Microbiology

Assessment of endotracheal aspirate culture appropriateness among adult ICU patients at an academic medical center

Michael Chambers; Romney Humphries; Bryan Harris and Tom Talbot

Background: Ventilator-associated pneumonia (VAP) is a significant cause of mortality in intensive care units (ICUs), but minimal research exists regarding the appropriateness of ordering endotracheal aspirate cultures (EACs). We evaluated the diagnostic utility of rationales given for EAC collection in ICUs at an academic medical center to assess potentially inappropriate EAC ordering. **Methods:** The study population comprised all adult patients admitted to an ICU in 2019 who underwent EAC collection. A random 10% sample from this population, stratified by ICU type, was selected. Clinical and diagnostic characteristics within 24 hours of EAC collection were identified by chart review. Clinical documentation was reviewed to identify ICU provider rationales for ordering EAC. **Results:** In total, 749 patients underwent EAC collection. Among them, 75 patients comprised the random sample, of whom 7 (9.3%) were excluded due to extubation before culture collection. Figure 1 shows patient distribution by ICU type. From these 68 patients, 105 EACs were collected. Of these, 41 (39%) were positive for potential pathogens, and 59 (56.2%) had explicit rationales for EAC collection, including fever (44.1%), hypoxia (18.6%), leukocytosis (16.9%), secretions (11.9%), shock (10.2%),



Characteristic	Sensitivity (%)	Specificity (%)	Positive LR	Negative LR
Fever	70.7	53.1	1.5	0.6
Hypothermia	12.2	81.3	0.7	1.1
Hypoxia	41.5	62.5	1.1	0.9
Leukocytosis	68.7	28.1	0.9	1.2
Leukopenia	8.8	96.7	2.7	0.9
Secretions				
Thick	39.0	65.6	1.1	0.9
Bloody or pink	9.8	82.8	0.6	1.1
Tan	31.7	79.7	1.6	0.9
Green	2.4	98.4	1.6	1.0
Yellow	14.6	90.6	1.6	0.9
Shock				
Pressor requirement	36.6	59.4	0.9	1.1
Three or more pressors	12.2	93.8	2.0	0.9
Imaging				
Consolidation	4.9	89.1	0.4	1.1
Opacity	22.0	75.0	0.9	1.0
Atelectasis	48.8	64.1	1.4	0.8
Effusion	22.0	65.6	0.6	1.2
Pulmonary edema	26.8	82.8	1.6	0.9
No Rationale Given for EAC	36.6	51.6	0.8	1.2

LR = Likelihood Ratio

EAC = Endotracheal Aspirate Culture

and radiologic findings (8.5%). Also, 43.8% of EACs had no explicit rationale for collection. Table 1 shows sensitivities, specificities, positive likelihood ratios (LRs), and negative LR for these rationales and related characteristics. **Conclusions:** EACs were commonly ordered without clear clinical indications. Of the noted rationales for EAC collections, most performed poorly at predicting positive cultures, which challenged common rationales for ordering EAC. This study could serve as a foundation for diagnostic stewardship interventions for EAC, potentially decreasing unnecessary cultures.

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Poster Presentation - Poster Presentation

Subject Category: Dialysis

Developing a statewide infection prevention program assessment service for dialysis settings using a six-sigma framework

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Background: Due to the need for recurrent and direct access to the bloodstream, patients who require hemodialysis are at higher risk of developing healthcare-associated infections. Failure to assess gaps in systems and processes impedes the implementation of quality and performance improvement initiatives. In Michigan, there is no consultative service offered to dialysis units to assist with infection prevention practices, and no statewide dialysis data are being utilized. The Michigan Department of Health and Human Services developed a consultative, nonregulatory service dedicated to providing a comprehensive assessment of dialysis-based infection prevention programs. **Methods:** A multidisciplinary team created an infection prevention dialysis evaluation program using the six-sigma define-measure-analyze-design-verify model. These elements included content within the dialysis-specific Infection Control Assessment and Response (ICAR) Tool from the CDC with supporting program assessment items. From August 2021 through August 2022, the team completed 17 inpatient dialysis assessments within our cohort's 17 hospitals. Data were analyzed using descriptive statistical analysis, and the final analysis included 1,086 observations from the developed assessment tool. Observations were grouped into 7 infection prevention categories: appropriate use of single and multiuse devices and supplies, aseptic technique, bloodborne pathogen prevention, cleaning and disinfection, hand hygiene, personal protection equipment (PPE) use, and storage of

devices and supplies. Detailed summary reports were provided to the participating facilities after each site visit that included identified gaps, recommendations for improvement, and evidence-based resources. **Results:** Deficiencies were grouped into 7 major infection prevention categories among the 17 assessments, including cleaning and disinfection ($n = 17$, 100%), hand hygiene ($n = 9$, 53%), PPE use ($n = 9$, 53%), appropriate use of single and multiuse devices and supplies ($n = 6$, 35%), bloodborne pathogen prevention measures ($n = 6$, 35%), aseptic technique ($n = 5$, 29%), and storage of devices and supplies ($n = 4$, 24%). **Conclusions:** Our program's prototype has been successful at detecting gaps in dialysis-based IP programs. By conducting data analyses of assessment findings, we have been able to assist the organization in establishing priorities for quality and performance improvement. Based on the results, comprehensive and robust systems to assess infection prevention programs, including those in dialysis settings, are necessary to enhance infection prevention operations across the continuum of care.

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Subject Category: Dialysis

Characterization of negative health outcomes for dialysis events by vascular access type—Tennessee, 2015–2019

Tara Suhs; Alex Kurutz and Christopher Wilson

Background: The dialysis patient population is at a higher risk for nosocomial infections as well as related negative consequences including hospitalization and death. The CMS and the state of Tennessee mandate reporting of 3 types of dialysis events: positive blood culture, intravenous antimicrobial starts, and pus, redness, or increased swelling at the access site. We explored hospitalization and death outcomes by vascular access types for dialysis events reported to the NHSN for licensed outpatient hemodialysis clinics in Tennessee from 2015 to 2019. **Methods:** We looked at the frequency of hospitalization and death among those who experienced a dialysis event for 3 types of vascular access: arteriovenous fistula, arteriovenous graft, and tunneled central venous catheter (CVC). Other vascular-access types were excluded due to low usage rates. Odds ratios and confidence intervals were used to quantify the relationship between access type and hospitalization, and access type and death. Pooled analysis was used due to the stable rates of death and hospitalization among access types from 2015 to 2019. **Results:** From 2015 to 2019, 16,742 dialysis events were reported for the 3 access types: 8,055 dialysis events (48.1%) occurred among those with tunneled CVCs, 7,107 (42.5%) occurred among those with fistulas, and 1,580 (9.4%) occurred among those with grafts. Of the 16,742 dialysis events, 3,420 patients (20.4%) were hospitalized either due or related to their dialysis event; 220 (1.3%) deaths occurred either due to or related to the patient's dialysis event. The odds of being hospitalized was 1.47 (95% CI, 1.29–1.67) times greater in those with grafts compared to those with fistulas. Patients with tunneled CVCs were 1.30 (95% CI, 1.20–1.41) times greater to be hospitalized compared to those with fistulas. The odds of death was 1.09 (95% CI, 0.9–2.5) times greater in those patient with tunneled CVCs compared to those with fistulas, whereas the odds of death among patients with grafts was 0.73 (95% CI, 0.82–1.43) times the odds of death compared to patients with fistulas.

TABLE 1

DIALYSIS EVENTS (ALL ACCESS TYPES)		16742
TUNNELED CVC		8055
FISTULA		7107
GRAFT		1580
DEATHS		220
TUNNELED CVC		113
FISTULA		92
GRAFT		15
HOSPITALIZATION		3420
TUNNELED CVC		1772
FISTULA		1266
GRAFT		381

Conclusions: Overall, our findings conclude hemodialysis patients with tunneled CVCs have an increased risk for the negative health outcomes of hospitalization and death when compared to the other access types, supporting previous studies. Additionally, grafts had a higher risk of hospitalization compared to fistulas, but patients with grafts had lower odds of death than those with fistulas. Further investigation is needed to study how the COVID-19 pandemic may have affected the trends of negative health outcomes related to dialysis events.

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Subject Category: Disinfection/Sterilization

Measuring the efficacy of routine disinfection methods on frequently used physical therapy equipment

Aaron Barrett; Amanda Graves; Elaine De Jesus; Jennifer Edelschick; Diandrea McCotter; Deverick Anderson; Nicholas Turner and Bobby Warren

Background: Frequently used physical therapy (PT) equipment is notably difficult to disinfect due to equipment material and shape, however, the efficacy of standard disinfection of PT equipment is poorly understood. **Methods:** We completed a prospective observational microbiological analysis of fomites used in adult or pediatric PT at Duke University Health System, Durham, North Carolina, from September to December 2022. Predetermined study fomites were obtained after being used during a clinical shift and standard disinfection had been completed by clinical service staff. Fomites were split into 2 halves, left and right, for sampling. Samples were taken with premoistened cellulose sponges processed using the stomacher technique and were incubated on appropriate selective and general medias. We defined antimicrobial-resistant, clinically important pathogens (AMR-CIP) as MRSA, VRE, and MDR-gram-negative isolates, and non-AMR-CIP as MSSA, VSE, and gram-negative species. Study fomites were grouped as follows: (1) pediatric pig toy, (2) walking aids (walkers or canes), (3) balls (medicine, dodge, etc), and (4) other (foam roller, sliding board, etc). **Results:** In total, 47 patients, 61 fomites, and

Table 1

	Overall N = 122 n (IQR)	Left N = 61 n (IQR)	Right N = 61 n (IQR)	p
Total CFU	1348 (398-2365)	468 (161-1230)	540 (102-1221)	0.45
Pig (N = 42)	586 (172-725)	228 (112-460)	96 (48-350)	0.19
Walking aids (N = 36)	1076 (374-2320)	660 (198-1260)	638 (251-1231)	0.16
Therapy Balls (N = 32)	2237 (1425-2658)	813 (613-1233)	918 (732-1628)	0.44
Other (N = 12)	909 (428-1619)	350 (309-715)	325 (119-1138)	0.94

Table 2

	Overall N = 122 n (%)	Left N = 61 n (%)	Right N = 61 n (%)	p
Total CIP				
Total	52 (43)	23 (38)	29 (48)	0.27
AMR CIPs	15 (12)	7 (11)	8 (13)	0.78
Non AMR CIPs	37 (30)	16 (26)	21 (34)	0.33
Pig (N = 42)				
Total	5 (12)	2 (9)	3 (14)	0.65
AMR CIPs	1 (2)	0	1 (5)	
Non AMR CIPs	4 (9)	2 (9)	2 (9)	
Walking aids (N = 36)				
Total	26 (72)	14 (78)	12 (67)	0.62
AMR CIPs	8 (22)	4 (22)	4 (22)	
Non AMR CIPs	18 (50)	10 (56)	8 (44)	
Therapy Balls (N = 32)				
Total	21 (66)	7 (44)	14 (88)	0.06
AMR CIPs	6 (19)	3 (19)	3 (19)	
Non AMR CIPs	15 (47)	4 (25)	11 (69)	
Other (N = 12)				
Total	0	0	0	1
AMR CIPs	0	0	0	
Non AMR CIPs	0	0	0	