Meningitis and encephalitis panel, standalone PCR and culture results overall and by age group.

**Conclusion.** In our cohort, the ME panels were overwhelmingly negative. Only 12% of ME panels were positive, mostly with self-limited viral pathogens (e.g., EV, parechovirus). Performance was worse when samples had < 10 WBC/hpf. Duplicative testing was common and had no benefit. Performance was similar across age groups. More targeted use of the ME panel could improve the utility and efficacy of this test.

**Disclosures.** Ann Bonkowsky, MD/PhD (Advisor or Review Panel member); Esther Giordano, PharmD, BCPS, BCIDP (Consultant, Grant/Research Support, Other Financial or Material Support, I have intellectual property through the University of Utah in BioFire Diagnostics and the FilmArray and receive royalties through the University of Utah, Merck) (Advisor or Review Panel member); Melissa S. Wilkinson, DO (Advisor or Review Panel member); Ryan Prusa, DPM (Consultant, Grant/Research Support, Other Financial or Material Support, I have intellectual property through the University of Utah in BioFire Diagnostics and the FilmArray and receive royalties through the University of Utah); Rosa Rosa, MD (Advisor or Review Panel member); UnityPoint Health Des Moines - Iowa Methodist Medical Center, Cologne, Minnesota; UnityPoint Health, Des Moines, IA; Iowa Methodist Medical Center, Waukee, Iowa; Iowa Methodist Medical Center, Des Moines, Iowa

**Session:** P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

**Background.** *S. aureus*, including MRSA, is a common colonizer of the nares. Recent data have shown that a negative MRSA nares screen by PCR has a negative predictive value of 98%. This implies that the absence of colonization can significantly reduce empiric vancomycin utilization. This study aimed to determine the use of MRSA nares screening on patients receiving vancomycin for respiratory tract infections (RTI) following the addition of the screen to the institutional RTI management guidelines.

**Methods.** This was a retrospective chart review of adult inpatients presenting to two community-teaching hospitals who were prescribed vancomycin for the treatment of RTIs. Patients were divided into pre-guideline (Jan-Feb 2019), post-guideline 1 (Jan-Mar 2020), and post-guideline 2 (Feb-Apr 2020) groups. The primary endpoint was the difference in percent of vancomycin orders discontinued within 24 hours of a negative screen. Secondary endpoints included the percent of screens ordered, re-initiation of vancomycin within seven days of RTI, and total vancomycin utilization of therapy (DOT) per 1000 patient days (PD).

**Results.** Of 493 vancomycin orders screened, 100 orders in each arm were analyzed. There was an absolute increase of 20.6% in vancomycin orders discontinued within 24 hours of a negative screen between the pre-guideline and post-guideline 2 groups (59.1% vs. 79.7%, p = 0.0177). When compared to the pre-guideline group, utilization of the screen increased by 15% in the post-guideline 1 group (48% vs. 63%, p = 0.00328) and 26% in the post-guideline 2 group (48% vs. 74%, p = 0.000164). There was no difference in re-initiation of vancomycin. A statistically significant reduction in total vancomycin DOT/1000PD from the pre-guideline to the post-guideline 1 and 2 groups (66 to 63, respectively) was also observed.

**Table 1: Patient Characteristics**

|               | Pre-Guideline 1 (n=100) | Post-Guideline 1 (n=100) | Post-Guideline 2 (n=100) |
|---------------|-------------------------|--------------------------|-------------------------|
| Age, years (mean ± SD) | 70 ± 11.4              | 70 ± 11.5                | 69 ± 11.5               |
| Male          | 65                      | 59                       | 56                      |
| Length of stay, days (mean ± SD) | 11 ± 2.6              | 9.55 ± 2.63              | 15.58 ± 2.28            |
| Pneumonia     | Community-Acquired      | 75                       | 76                       |
|               | Hospital-Acquired       | 0                        | 0                       |
|               | Ventilator-Associated   | 0                        | 0                       |
|               | Aspiration              | 0                        | 0                       |
| Previous history of MRSA | 2                      | 3                        | 2                       |
| History of hospitalization and IV antibiotic use in the past 90 days | 24                       | 25                       | 21                      |
| Culture or necrotizing pneumonia found on imaging | 11                      | 4                        | 0                       |

**Table 2: Endpoints**

|                                         | Pre-Guideline 1 (n=100) | Post-Guideline 1 (n=100) | Post-Guideline 2 (n=100) |
|-----------------------------------------|-------------------------|--------------------------|-------------------------|
| Total vancomycin utilization DOT/1000PD | 48.1 (40.9 to 55.3)     | 42.1 (38.5 to 45.7)       | 65 (59.1 to 71.5)        |
| Bone and soft tissue cultures           | 72 (64.3 to 80.1)       | 67 (61.7 to 72.9)         | 92.7 (86.1 to 99.2)      |
| Blood cultures                          | 80.3 (73.4 to 87.2)     | 79.4 (72.5 to 86.3)       | 92.7 (86.1 to 99.2)      |
| All cultures                            | 76.4 (69.2 to 83.6)     | 75.4 (68.6 to 82.3)       | 88.5 (81.7 to 95.3)      |

**Conclusion.** The addition of the MRSA nares screen to the institutional RTI guidelines increased utilization of the test and demonstrated a reduction in vancomycin utilization. With an increase in education, prospective audit and feedback, and prescriber comfort with the use of the MRSA nares screen in the post-guideline 2 group, there was significant improvement in MRSA nares screen utilization, vancomycin discontinuation after a negative screen, and vancomycin utilization.

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

79. Clinical Utility of Methicillin-Resistant *Staphylococcus aureus* (MRSA) Nasal PCR Assays Beyond Respiratory Infections

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**Session:** P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

**Background.** Empirc use of vancomycin is common in clinical practice. Currently there is strong evidence to support the use of MRSA nasal screening to predict the absence of MRSA in respiratory infections; however, minimal data exists regarding its utility as a de-escalation tool beyond pulmonary indications. Furthermore, MRSA nasal PCR has been shown to be a more efficient way to detect the presence of MRSA colonization than traditional culture methods. The purpose of this study was to evaluate the correlation between results of MRSA nasal PCR assays and blood or bone/soft tissue cultures.

**Methods.** This was a retrospective study of patients who presented to any of three hospitals part of an integrated health system in Des Moines, Iowa, from March 1, 2019 to February 29, 2020. Included patients were those who underwent MRSA nasal PCR screening and had a clinical culture (blood, bone, tissue, deep podiatric wound, joint aspirate, or synovial fluid) obtained within 3 days of the MRSA nasal PCR. Data on age, sex, diabetes mellitus and dialysis were separately estimated.

**Results.** A total of 1859 patients were included in the study. Of these patients, 1853 patients had a blood culture obtained and 171 patients had a bone/soft tissue culture obtained. The median age was 66 years, and 1086 (54.6%) patients were male. At baseline, 33.1% and 3.8% of patients had diabetes or were on dialysis, respectively. The overall prevalence of MRSA colonization was 12.3%. The sensitivities of the MRSA nasal PCR screening were 67.6% for all clinical cultures, 81.8% for blood cultures, and 55% for bone/soft tissue cultures. Specificities were 88.8%, 88.5%, and 92.7% for all cultures, blood cultures, and bone/soft tissue cultures, respectively. The PPVs were 11.7%, 7.5%, and 50% for all cultures, blood cultures, and bone/soft tissue cultures, respectively.
Conclusion. MRSA nasal PCR screening showed high NPVs across blood and bone/soft tissue cultures. These results indicate the clinical utility of MRSA nasal PCR assays beyond respiratory infections and can further support antimicrobial stewardship activities.

Disclosures. All Authors: No reported disclosures

80. The Utility of Cultures for Isolated Fevers in Patients with Influenza or COVID-19 Receiving Extracorporeal Membrane Oxygenation
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background. Critically ill patients receiving extracorporeal membrane oxygenation (ECMO) are at elevated risk for nosocomial infection. Physiological responses to infection on ECMO are difficult to interpret as many clinical characteristics are controlled by the circuit including temperature. This study aimed to determine the culture positivity rates in patients receiving ECMO with influenza or COVID-19.

Methods. A single center retrospective study was performed on all patients who received ECMO support at a single institution between December 2014 and December 2020 with influenza or COVID-19. All cultures ordered were reviewed for indication. Patients with fever without specific clinical syndrome or signs of decompensation, such as increasing vasopressor requirement were included. Infections and contaminants were defined by treatment team.

Results. A total of 45 patients received ECMO with an admission diagnosis of influenza or COVID-19 during the study period. This cohort had a median age of 44 (interquartile range (IQR): 36-53) and was predominantly male (84%). The median time on ECMO was 360 hours (IQR: 183-666). 43/137 (31%) of infectious workups were ordered for isolated fever. The most common workup ordered for fever was combination blood cultures (BC) and urine cultures (UC) (13, 30%), followed by combination BC, UC, and respiratory cultures (RC) (11, 26%). Four (9%) infections were identified (3 blood stream, 1 respiratory) and five (12%) cultures grew contaminants (1 blood, 1 respiratory, 2 urine). Culture positivity rate was greatest for BC (3/35, 9%) followed by BC/UC (11/58, 19%), and lowest for UC (1/26, 0%).

Conclusion. Although cultures are commonly ordered for isolated fever in patients with influenza and COVID-19 receiving ECMO, culture positivity rate is low. In particular, no urinary tract infections were identified and the screening for urinary tract infection in patients receiving ECMO with isolated fever is not beneficial. Further work identifying signs and symptoms associated with infection is needed to improve diagnostic stewardship in this population that is high risk for nosocomial infections.

Disclosures. All Authors: No reported disclosures

81. Reducing Unnecessary Blood Cultures Through Diagnostic Stewardship
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background. At our institution, we learned the frequency of blood cultures was sometimes being changed from "Once" to "Daily" without a defined number of days. We hypothesized this led to unnecessary blood cultures being performed.

Methods. Over a 3 month period from 12/6/2019-3/6/2020, we retrospectively evaluated the charts of patients who had a blood culture frequency changed to "Daily". We evaluated if there was an initial positive blood culture within 48 hours of the "Daily" order being placed and the number of positive, negative, or "contaminant" sets of cultures drawn with the order. Contaminant blood cultures were defined as a contaminant species, present only once in the repeat cultures, and not present in initial positive cultures.

Results. 95 unique orders were placed with 406 sets of cultures drawn from 89 adults. ~20% of the time (17 orders) the order was placed without an initial positive blood culture. This led to 62 sets of cultures being drawn, only 1 of which came back positive. 78/95 orders had an initial positive blood culture. The most common initial organisms were Staphylococcus aureus (SA) (38), Candida sp (10), Enterobacteriaceae sp (10), and coagulase negative staphylococci (7). 43/78 (55%) orders with an initial positive set had positive repeat cultures. SA (26) and Candida sp (8) were most common to have positive repeats. Central line associated bloodstream infections (CLABSIs) were found in 5 of the orders and contaminant species were found in 4 of the orders. 54% of the patients who had a "Daily" order placed did not have positive repeat cultures. The majority of the cultures were drawn from Surgical (40 orders) and Medical (35 orders) services. Assuming that SA and Candida sp require 48 hours of negative blood cultures to document clearance and other species require 24 hours, it was estimated that 51% of the cultures drawn using the "Daily" frequency were unnecessary. Cost savings over a year of removing the "Daily" frequency would be ~$14,000.

Results.