Conclusion. AXDX did not appear to have a significant impact on time to anti-biotic de-escalation and time to oral antibiotic therapy. However, time to organism ID and AST results were significantly shorter in the AXDX cohort.

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71. Diagnostic Stewardship of Clostridioides difficile Testing
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship
Background. C. difficile (CD) testing is frequently ordered inappropriately. Highly sensitive polymerase chain reaction (PCR) tests can detect CD colonization leading to misdiagnosis. Providers often overlook other causes of diarrhea, notably laxatives. To improve diagnostic stewardship, our hospital introduced an electronic medical record (EMR)-based order set (OS).

Methods. In a 926-bed, teaching hospital, we conducted a 3-step intervention to improve CD diagnostic stewardship. (1) A retrospective analysis of CD orders before and after OS implementation was done to assess its impact on inappropriate orders. The OS included two questions: (a) Did patient have ≥ 3 loose bowel movements in past 24 hours and (b) No laxatives in past 24 hours? An appropriate order was defined if “yes” to both questions. It was still appropriate if “no” to either question but ≥ 2 unexplained following features: fever > 100.4 F, abdominal pain, megacolon, ileus or leukocytosis > 11,000 cells/mm³ in prior day. (2) After implementation of OS, house staff compliance with OS was surveyed via email. (3) Rationale for inappropriate orders was discussed with providers.

Results. Of 238 patients in retrospective analysis, 44% were ≥ 65 years and 37% had other potential causes of diarrhea. Common clinical features were leukocytosis (40%) and fever (31%). There was no significant difference in inappropriate testing: pre-OS 27/99 (27%) vs post-OS 44/139 (32%) (p=0.47). Of 43 house officers who participated in the survey, 75% indicated they overrode the OS. When asked to provide rationale of inappropriate CD testing, providers acknowledged inappropriate ordering but did not want to miss a CD diagnosis and frequently overlooked other causes of diarrhea.

Conclusion. Appropriate CD testing relies on providers’ appreciation of a clinical picture consistent with CD infection, confirmation of clinically significant diarrhea, and consideration of other causes of diarrhea. Providers order inappropriate tests, not due to lack of knowledge, but likely fear of missing diagnosis and overlooking other causes of diarrhea.

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72. Evaluation of Acclerate Pheno® on Clinical and Antimicrobial Outcomes in Patients with Methicillin Susceptible Staphylococcus aureus Bloodstream Infections
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Session: P-05. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship
Background. Anti-staphylococcal beta-lactams (BL) are treatment of choice for methicillin susceptible Staphylococcus aureus (MSSA) bloodstream infections (BSI) as they have superior MSSA bacteremia clearance. Based on the hypothesis that earlier initiation of anti-staphylococcal BL may improve clinical outcomes, this study compared clinical and microbiologic features of patients with MSSA BSI pre- and post-implementation of Acclerate Pheno® (AXDX).

Methods. This was a case-control analysis of adult inpatients with MSSA BSI from July 2020 to July 2020. Patients were matched with historical controls (July 2018–July 2020) based on age (±4 years), gender, organism, and source of infection. The primary outcome was time to antibiotic (abx) de-escalation to an anti-staphylococcal BL. Secondary outcomes included hospital length of stay (LOS), 30-day all-cause mortality and hospital readmission, and 60-day C. difficile infection.

Results. A total of 25 cases with MSSA BSI were identified, of which 18 (72%) were matched to historical controls. Of these patients, 12 (67%) were male with an average age of 67 years (SD ±12). Other demographics were similar between groups. The median time to species identification 21.3 hours in cases (IQR 14–31.9) vs 33.3 hours in controls (29–41.7), p=0.046 and abx susceptibilities [22.5 hours (18.8 – 42) vs 60.1 hours (46–61.9), p= 0.001] were significantly shorter in cases. The average time to abx de-escalation from time to organism susceptibility was 1.7 days (±1.9) for cases compared to 2.7 days (±1.5) for controls (p = 0.129). There were no significant differences detected in hospital LOS, 30-day mortality or readmission, and 60-day C. difficile infection.

Conclusion. Although time to organism identification and abx susceptibilities was significantly shorter in cases, AXDX was not associated with a statistically significant reduction in time to anti-staphylococcal BL initiation or a difference in associated clinical outcomes. A trend in shorter time to de-escalation was observed and warrants further investigation in a larger reduction.

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73. Identification of Novel Factors Associated with Inappropriate Treatment of Asymptomatic Bacteriuria Treatment in Acute and Long-term Care Facilities
Maryrose R. Valentine-King, PhD, MPH; Van, RN;3 John Van, BA1; Casey E. Hines-Munson, BS2; Laura Dillon, MS3; Christopher J. Graber, MD, MPH; Payal K. Patel, MD, MPH4; Dimitri M. Drekonja, MD, MS5; Paola Lichtenberger, MD6; Bhavesh Shukla, MD, MPH7; David J. Ramm, MD, PhD8; Larissa Gregoryan, MD,PhD7; Taylor College of Medicine, Houston, Texas; 8Veteran’s Administration (VA) facilities from acute or long-term care wards at eight Veteran’s Administration (VA) facilities from 2017-2019 (n=960). Trained chart reviewers classified cultures as UTI or ASB and as treated or untreated. Charts were searched specifically for mention of 8 categories of potentially misleading symptoms that often lead to overtreatment of ASB (e.g. “prior history of UTI”, “prior history of C.difficile infection”). We also created a ‘suspected systemic inflammatory response syndrome (SIRS)’ category that included any mention of leukocytosis, tachycardia, tachypnea, subjective or low-grade fever, or hypothermia. Generalized estimating equations logistic regression was used for analysis.

Results. Of 433 chart and 575 cultures from patients that were primarily white (71%) males (94%) from acute medical units (75.7%) with a mean age of 76. Twenty-eight percent (n=159) of ASB cases received antibiotics. In addition to the usual known predictors, multiple new misleading symptoms were found to be associated with ASB treatment (Table 1). Novel, independent predictors of ASB treatment included behavioral issues, such as falls or fatigue (odds ratio (OR): 1.8; 95% CI: 1.05-3.07), urine characteristics, such as cloudy or odorous urine (OR: 1.41; 95% CI: 1.13-1.75), voiding issues (OR: 1.86; 95% CI: 1.43-2.41), and a single, free text mention of a SIRS criteria (OR: 1.63; 95% CI: 1.16-2.3).

P-values extracted from multivariate regression model (ASB-asymptomatic bacteriuria; NS-not significant; SIRS- systemic inflammatory response syndrome). The following signs or symptoms compose each category: abnormal laboratory findings: acute kidney injury, abnormal creatinine, leukocytosis, pyuria/positive urinalysis, hyperglycemia; abnormal vital: heart rate, blood pressure, respiratory rate; behavior issues: falls, confusion, lethargy, fatigue, weakness; nonspecific signs or symptoms: non-specific gastrointestinal, genitourinary, neurological symptoms; voiding issues: decreased urine output, urinary retention, urinary incontinence; urine characteristics: change in color, foul smell, cloudy urine, sediment; SIRS: ordinal variable characterizing if 1 or ≥ 2 of the following were documented by the provider: leukocytosis, tachycardia, tachypnea, subjective or low-grade fever, hypothermia.
Conclusion. Our in-depth chart review, with attention to misleading symptoms and any documentation of the provider thought process, highlights new factors associated with inappropriate ASB treatment. Patients with even a single SIRS criteria are at risk for unnecessary treatment of ASB; this finding can help design antibiotic stewardship interventions.

Disclosures. Barbara Trautner, MD, PhD, Genentech (Consultant, Scientific Research Study Investigator)

74. Evaluation of the Differences in Appropriateness of BioFire® FilmArray® Gastrointestinal Panel Testing between Emergency Department and Inpatient Services

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

Background. Use of rapid molecular diagnostic panels in the evaluation of diarrhea provides increased sensitivity for organism identification and decreased time to results. However, their inappropriate use can lead to unnecessary expenditures and antimicrobial exposures. We aimed to characterize the appropriateness of testing using the BioFire® FilmArray® Gastrointestinal Panel (SFA) in different clinical settings and to describe the impact of SFA results on patient care.

Methods. Retrospective study of adult patients presenting to hospitals part of an integrated health system in Des Moines, Iowa, between July 30, 2019, and September 30, 2019, and who had a SFA ordered and collected in the Emergency Department (ED) or an inpatient service. The appropriateness of SFA testing was determined according to adherence to a local algorithm available through the hospital’s intranet (Figure 1). Reason for testing, appropriateness of SFA test, molecular targets identified, and antibiotic exposures were collected.

Results. We identified 257 patients, 111 (43.2%) who had SFA done in the ED and 146 (56.8%) as inpatients. Testing was deemed inappropriate in 46 (41.4%) of ED patients compared to 100 (68.5%) of inpatients (p = 0.0001). Documented indications for SFA are presented in Table 1. Among ED patients testing was most frequently considered inappropriate due to absence of diarrhea on the day of test collection (41.3%), and among inpatients due to the use of SFA for assessment of hospital-onset diarrhea (47.0%) (Table 2). Overall, there were 94 (36.6%) positive SFA (Figure 2). Among ED patients, the percentage of positive SFA samples was 30.4% and 50.8% for inappropriate and appropriate testing respectively (p = 0.03), while for inpatients it was 33.0% for inappropriate orders and 30.4% for appropriate orders (p = 0.76). Antibiotics were prescribed to 28.2% and 28.1% of patients tested in the ED and inpatient service respectively.

Table 1. Reasons for testing with BioFire® FilmArray® Gastrointestinal Panel according to clinical setting

| Reason for testing | Inpatient | p-value |
|--------------------|-----------|---------|
| Acute gastroenteritis | 80 (72.1) | 57 (39.0) |
| Hospital-onset diarrhea | 0 | 50 (34.2) |
| No indication specified | 26 (23.4) | 35 (24.0) |
| Other | 5 (4.5) | 4 (2.7) |

Figure 2. Distribution of molecular targets identified by the BioFire® FilmArray® Gastrointestinal Panel according to clinical setting.

Conclusion. High proportions of inappropriate SFA testing were identified both in the ED and inpatient services, with distinct issues in each site. Characterization of the reasons underlying inappropriate use of SFA can aid in the design of diagnostic stewardship interventions tailored to each clinical setting.

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75. Utility of Fungal Blood Cultures in Portland, Oregon

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

Background. Fungal blood cultures (fungal isolators) should be used, if at all, primarily for identification of mold infections. At our institution we noted patients having fungal blood cultures drawn in many other situations, including when the primary team was concerned for candida bloodstream infection. We sought to describe the utility of this practice and of fungal blood cultures in general.

Methods. We retrospectively reviewed the results of fungal blood cultures for 2 years, from 3/1/2019-3/1/2021. We evaluated the number of episodes, culture results, whether there was a had prior bloodstream infection, and risk factors for fungal infection including renal replacement (RRT), ECMO, and immunosuppression (IS). Immunosuppression was defined as chronic systemic steroid use, recent receipt of high dose steroids within 2 weeks, history of organ transplant, history of stem cell transplantation, hematologic malignancies, or receipt of a biologic agent.

Results. 187 fungal blood cultures were drawn in 143 patients - 80 cultures in 70 patients from 3/2019-3/2020 and 107 cultures in 73 patients from 3/2020-3/2021. Only 3 patients had positive fungal blood cultures:1 (Candida kruzie) from 3/2019-3/2020 and 2 (Candida albicans and Cryptococcus neoformans) from 3/2020-3/2021; in all 3 cases the organism also grew from standard blood culture isolators. From 3/2019-3/2020, 1/80 cultures were drawn from an individual on ECMO while 15/80

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