**Figure 2.**

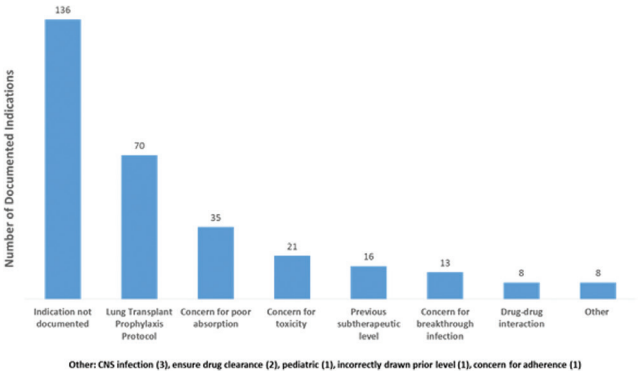
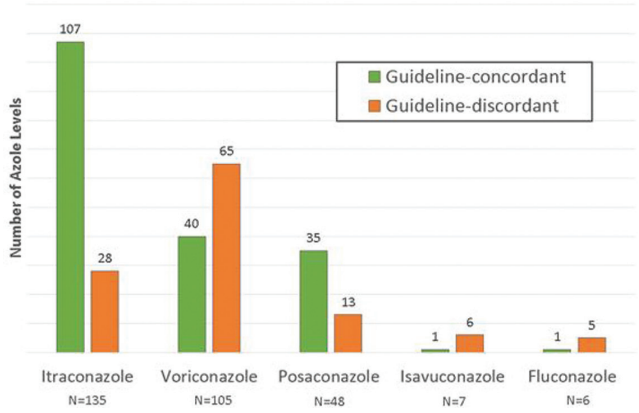



**Figure 3.**




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

### 1811. Minimizing Time to Optimal Therapy for Enterobacteriaceae Bloodstream Infections: Is Organism Identification Enough?

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**Session:** 218. Antimicrobial Stewardship: Impact of New Diagnostics
*Saturday, October 6, 2018: 12:30 PM*

***Background.*** BSI due to ceftriaxone (CRO)-resistant ENT are increasing in frequency, and are associated with delays in time to appropriate therapy. However, treating all patients at risk for CRO-resistant organisms with empiric carbapenem (CARB) therapy risks over exposure. Strategies are needed to appropriately balance these competing interests. The purpose of this study was to compare three methods for accomplishing this balance.

***Methods.*** Retrospective observational study of patients at the Detroit Medical Center with ENT BSI from July 1, 2016 to July 31, 2017. Patients with *E. coli*, *K. oxytoca*, *K. pneumoniae*, or *P. mirabilis* were included if both Verigene® GN-BC and traditional microbiology detected the organism. Patients were excluded if CARB resistance was detected via genetic markers. This study assessed the effectiveness of three methods to predict CRO resistance at the time of organism isolation. The first two methods were based on applying published scoring tools for extended spectrum β-lactamase BSI. If the patient met the cutoff score proposed by the authors they were hypothetically placed on a CARB, otherwise they were placed on CRO. Method 3 was based on results from Verigene. If the CTX-M marker was present patients were hypothetically placed on a CARB, and if not CRO. The methods were compared for their sensitivity, specificity, predictive values, and the number of times they would have resulted in inappropriate therapy or unnecessary escalation to CARB.

***Results.*** Four hundred fifty-one ENT were included, 73 (16%) of which were CRO-resistant. The comparative performance of the three methods is listed in the figure. Verigene performed well and was associated with fewer cases of early under treatment and over treatment. Published ESBL scoring tools performed poorly, missing two-thirds of CRO-resistant isolates and unnecessarily exposing many patients to CARB. Given the improved sensitivity and specificity of Verigene similar overall CARB use would be seen in the cohort despite roughly 40 patients getting placed on CARB 2 days earlier when CRO-resistant BSI was present.

***Conclusion.*** Vergiene significantly outperformed published ESBL scoring tools for identifying CRO-resistant ENT BSI. Institutions should validate scoring tools prior to implementation.

| Method | Cutoff | Sens | Spec | PPV | NPV | Under treatment (N) | Over treatment (N) | CARB days per 1000 patient days |
|---|---|---|---|---|---|---|---|---|
| Verigene | CTX-M | 85 | 99.7 | 98 | 97 | 11 | 1 | 136 |
| Lee | 2 | 32 | 90 | 38 | 87 | 50 | 35 | 134 |
| Augustine (1) | 3 OR 1-2 and critically ill | 37 | 88 | 36 | 88 | 46 | 48 | 142 |
| Augustine (2) | 3 | 29 | 89 | 34 | 87 | 52 | 41 | 134 |

***Disclosures.*** **T. T. Timbrook**, BioFire Diagnostics: Scientific Advisor, Speaker honorarium. Roche Diagnostic: Scientific Advisor, Speaker honorarium. GenMark Diagnostics: Scientific Advisor, Speaker honorarium.

### 1812. Impact of Rapid Identification of Blood Cultures With Antimicrobial Stewardship at Three Community Hospitals Within a Health System

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**Session:** 218. Antimicrobial Stewardship: Impact of New Diagnostics
*Saturday, October 6, 2018: 12:30 PM*

***Background.*** The use of rapid diagnostic tests (RDT) in microbiology decreases time to pathogen identification (ID). When coupled with an Antimicrobial Stewardship Program (ASP), time to optimal antibiotics can be significantly reduced. The purpose of this study was to evaluate the impact of Verigene® Gram-Positive Blood Culture Test (BC-GP) and Gram-Negative Blood Culture Test (BC-GN) implementation with an ASP at three community hospitals within a health system with centralized microbiology services.

***Methods.*** A retrospective analysis was conducted to compare time to targeted antibiotics for treatment of bloodstream infections (BSI) before and after implementation of Verigene®. Patients were included with a positive blood culture for organisms detectable by Verigene BC-GP and BC-GN during September 2016 (pre-implementation group) and September 2017 (post-implementation group). Patients were excluded if positive blood culture had more than one organism, patient was actively being treated for an infection unrelated to blood culture or blood culture results were available after patient expired, was discharged or transferred. Targeted antibiotic therapy was defined as antibiotic therapy tailored toward pathogen based on ID and sensitivities. Each ASP pharmacist received Verigene® notifications in real-time. Secondary endpoints were in-hospital mortality, hospital length of stay (LOS), and days of vancomycin therapy.

***Results.*** A total of 93 patients were included in the final analysis with 42 patients in pre- group and 51 in post-group. Patients achieving targeted therapy during their hospital stay was 38 of 42 (90%) in the pre-group and 47 of 51 (92%) in the post-group. Of those who achieved targeted therapy, time to targeted therapy was 78.4 hours vs. 43.1 hours in pre-group vs. post-group, respectively ($P < 0.001$). No significant difference was detected for in-hospital mortality or hospital LOS. Length of vancomycin therapy was decreased from 85.8 hours to 48.6 hours in post-group ($P < 0.001$).

***Conclusion.*** Implementation of RDT in three community hospitals with a centralized microbiology laboratory resulted in a significantly improved time to targeted antibiotics in patients with BSI when combined with ASP pharmacist real-time notification.

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

### 1813. Development and Validation of Novel Ambulatory Antibiotic Stewardship Metrics

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**Session:** 219. Antimicrobial Stewardship: New Methods and Metrics
*Saturday, October 6, 2018: 12:30 PM*

***Background.*** Over 260 million antibiotic courses are prescribed in ambulatory settings per year in the United States: 41% of which are for acute respiratory tract infections (ARTI). Over 50% of these antibiotic courses are inappropriate. However, interventions to improve ambulatory prescribing are little studied, and metrics to track antibiotic use are not well validated.

***Methods.*** To validate metrics for ARTIs in adults, we conducted a retrospective cohort study from January 1, 2016 to December 31, 2016 at 32 primary care practices. We randomly selected 1,200 office visits with a coded respiratory tract diagnosis and determined by medical record review the proportion of visits in which antibiotic prescription was inappropriate using modified Infectious Diseases Society of America treatment guidelines. We determined clinic and provider characteristics associated with inappropriate prescribing. By linear regression, we also determined the aggregate metrics best correlated with inappropriate antibiotic prescribing.