17.97. Combining Rapid Diagnostics With Pharmacy Resident-Led Antimicrobial Stewardship to Optimize Outcomes for Bacteremia With Methicillin-Resistant S. aureus (MRSA-B), Methicillin-Susceptible S. aureus (MSSA-B), and Coagulase-Negative Staphylococcus (CoNS) at Yale New Haven Hospital (YNHH) Nefa Rejor, PharmD2; Dayna MaCalman, PharmD, BCPS-AQ1; David Peper, MD, PhD2 and Jeffrey Topal, MD1,2; 1Department of Pharmacy, Yale New Haven Hospital, New Haven, Connecticut, 2Yale New Haven Hospital, New Haven, Connecticut, 3Department of Laboratory Medicine, Yale University School of Medicine, New Haven, Connecticut, 4Department of Internal Medicine, Section of Infectious Diseases, Yale University School of Medicine, New Haven, Connecticut

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Background. Given the severity of S. aureus bacteremia, prompt initiation of appropriate antibiotics is key. YNHH implemented the Cephid Xpert MRSA/SA PCR in an effort to decrease the time needed to identify MRSA-B, MSSA-B, and CoNS. The impact of rapid diagnostics has been limited without stewardship or infectious disease involvement. Our unique notification algorithm utilized our on-call pharmacy residents to allow for 24/7 coverage. The primary objective was to time optimal antibiotic therapy (OAT) before and after implementation of the PCR and algorithm. Secondary outcomes included time to blood culture clearance (BCC), acceptance rate of pharmacist and provider interventions, days of vancomycin therapy avoided, and 30-day mortality.

Methods. A retrospective cohort study was conducted in adult inpatients with blood cultures positive for Gram positive cocci in clusters. The pre-implementation, control group (CG) included patients from April 2016 to October 2017 and the post-implementation, intervention group (IG) was from October 2017 to April 2018. Patients <18 years and polymicrobial bacteremia were excluded. Data collected in addition to primary and secondary outcomes included baseline demographics, allergies and empiric antibiotics. OAT included vancomycin for MRSA-B or MSSA-B with severe β-lactam allergy; nafcillin or cefazolin for MSSA-B; and discontinuation of vancomycin for CoNS deemed a contaminant.

Results. Of the 544 patients reviewed, 434 met inclusion criteria: 182 in the CG and 252 in the IG with similar baseline characteristics. Mean time to OAT decreased from 10 hours in the CG to 5 hours in the IG (P = 0.006). Time to BCC in the CG and IG cohorts decreased from 100 to 43 hours (P = 0.0001). One day of vancomycin was avoided in patients with MSSA-B and 2 days with CoNS. 30-day mortality decreased from 18% (n = 32) in the CG vs. 6% (n = 15) in the IG (P = 0.0001). Finally, 95% (n = 153/163) of pharmacist interventions were accepted.

Conclusion. Utilizing the on-call pharmacy resident for notification of rapid diagnostic results for S. aureus bacteremia, we saw a significant decrease in time to OAT, BCC, and 30-day mortality. Our study demonstrates that in the setting of limited stewardship resources, additional members of the healthcare team can be utilized to optimize antibiotic use in conjunction with rapid diagnostics.

Disclosures. All authors: No reported disclosures.

1798. Phenotypic and Genotypic Impact of Antibiotic Stewardship Intervention on Daptomycin-Nonsusceptible Enterococcus faecium (DNSE) Clinical Isolates Abhay Dhad, MD, PhD2; Leslie Lee, PharmD3; Nicholas Feola, PharmD3; Donald Chen, MD, MPharm1; Servanda Dimitrova, MD, MPharm1; Changhong Yin, MD1; Weihua Huang, PhD1; John Fallon, MD1 and Guising Wang, MD, PhD3; 1Medicine, Westchester Medical Center/New York Medical College, Valhalla, New York, 2Pharmacy, Westchester Medical Center, Valhalla, New York, 3Phillips Research North America, Cambridge, Massachusetts, 4Pathology, New York Medical College, Valhalla, New York

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Background. Targeting “low-hanging fruit” is a pillar of antimicrobial stewardship (AMS). B-lactam allergies (BLA) frequently restrict clinical decision-making and lead to utilization of alternative, less preferred antimicrobials making them an ideal AMS target. Prior studies have demonstrated that BLA are grossly over reported by patients. This study aimed to calculate the excess pharmaceutical expenditures incurred by utilization of aztreonam in patients who had previously (or subsequently) tolerated a β-lactam (BL).

Methods. Retrospective chart review was performed on inpatients >18 years old at our institution who received at least one dose of aztreonam during the 2017 calendar year. Data collected included: BLA, both prior and subsequent BL classes tolerated, number of doses and days of aztreonam administered. Patients were excluded from the analysis if they did not have a documented BLA or if they received aztreonam as target of empiric therapy. Cost of aztreonam therapy was estimated with the cost of alternative BL agents based on prior and subsequently tolerated classes of BL. Comparator agents included: piperacillin/tazobactam (pencillin), cefepime (cephalosporin) and meropenem (carbapenem). Wholesale acquisition costs were used for each agent and comparator regimens were based on our health system-wide dosing guidelines adjusted for renal function.

Results. One hundred thirty-two patients met inclusion criteria. Of those patients, 88/132 (66.7%) had demonstrated tolerance of a BL agent. Specifically 69/132 (52.3%) previously and 19/132 (14.4%) subsequently tolerated a β-lactam. Across the study, $40,768.84 was spent on aztreonam for patients with prior/subsequent BL tolerance. Cost for alternative therapy was estimated at $31,143.25 total; with an estimated cost difference of $27,625.59. Estimated cost difference for prior tolerance was the $21,987.87 and subsequent $5,637.72.

Conclusion. Aztreonam is an uncommon but costly antimicrobial. This study demonstrated that reduction in aztreonam utilization based on prior tolerance of β-lactam agents could lead to a meaningful reduction in pharmaceutical expenditures and also as low-hanging fruit for an antimicrobial stewardship program.

Disclosures. All authors: No reported disclosures.
1800. Clinical Impact of Real-Time Predictive Model to Facilitate Antibiotic Prescribing in Gram-Negative Bacteria
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Background. Delay in effective antibiotic administration in severe infections such as bacteremia is associated with worse clinical outcomes. We implemented previously validated software that uses real-time predictive modeling to determine patient-specific antibiograms (PS-ABG). The software allowed prescribers to run the model on their individual patients. It also automatically evaluated positive blood cultures, alerting the antibiotic stewardship team if there was <90% chance of the organism being susceptible to current antibiotic therapy.

Methods. We performed a quasi-experimental study to evaluate clinical outcomes in patients with Gram-negative rod (GNR) bacteremia 18 months before (PRE) and 6 months after (POST) implementation of the software. Primary outcome was median time to effective antibiotic. Secondary outcomes included in-hospital mortality, utilization of antibiotics used for multidrug-resistant GNRs (MDR-GNR), median time to effective antibiotic in organisms resistant to at least one first-line antibiotic for sepsis, and length of stay.

Results. The change per month in the primary outcome did not differ between the PRE and POST periods (P = 0.48) (figure). Time to effective antibiotics in GNR bloodstream infections that were resistant to at least one first-line antibiotic for sepsis (cefepime, piperacillin–tazobactam, or levofloxacin) was lower following the intervention (15.8 hours vs. 13.7 hours, P = 0.11), and mortality decreased following the intervention (14.6% vs. 10.0%, P = 0.11) although these differences were not statistically significant. There was no difference in other secondary outcomes between PRE and POST groups: length of stay (7.7 vs. 7.5 days, P = 0.74) and days of therapy of MDR-GNR agents per 30 days of hospitalization (3.5 vs. 2.5, P = 0.09).

Conclusion. There was no difference in median time to effective antibiotic in all patients with GNR bacteremia. There was lower in-hospital mortality in the POST group and shorter time to effective antibiotic therapy in GNR bacteremia resistant to at least one first-line antibiotic for sepsis, although these differences were not statistically significant. Additional study in larger cohorts over longer periods is warranted to determine whether PS-ABGs improve clinical outcomes in patients with more resistant GNR bacteremia.