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Background. Since its introduction in 2009, use of daptomycin for treatment of enterococcal infections has resulted in the emergence of DNSE. Between 2009 and 2013, daptomycin nonsusceptibility among *E. faecium* was closely associated with emergence of a unique and dominant clone ST736 in our institution. In 2014, we instituted targeted measures to optimize the use of daptomycin. In this study, we describe the significant phenotypic and genotypic impact of reduced daptomycin use on clinical enterococcal isolates.

Methods. Enterococcal clinical isolates were recovered from January 2014 through December 2017. Daptomycin susceptibility was determined by MicroScan WalkAway™ System and confirmed by *E*-test. Selected DNSE and vancomycin-resistant *E. faecium* (VREfm) clinical isolates were analyzed by next-generation sequencing (NGS) using the Illumina systems to provide multilocus sequencing type (MLST). Daptomycin utilization data were extracted from pharmacy records.

Results. Targeted antibiotic stewardship initiatives consisted of preapproval, daily review for optimization of dose and duration, rapid de-escalation, consideration for appropriate alternative antibiotics for select disease syndromes and stopping of inappropriate daptomycin therapy. Over 4 years, this lead to a 39% reduction in overall use of daptomycin. Besides direct cost saving, this reduced use was associated with significant reduction in daptomycin nonsusceptibility from 12% to 4%, lowering of MIC_{90} from 8 to 4 µg/mL, and a clonal shift from dominant ST736 to ST117.

	Daptomycin Usage Days of Therapy /1,000 Days (Monthly Average)	Phenotypic Changes			Genotypic Changes
		MIC_{50} (µg/mL)	MIC_{90} (µg/mL)	% DNSE	Dominant Genotype Among VREfm
2014	742	4	8	12	**ST736 (38%)** ST18 (21%) ST412 (12%) ST117 (11%)
2015	633	4	6	10	
2016	576	4	4	7	
2017	455	4	4	4	ST736 (5%) ST18 (4%) ST412 (11%) ST117 (41%)

Conclusion. A targeted antibiotic stewardship initiative to address rising rate of daptomycin nonsusceptibility among *E. faecium*, resulted in significant phenotypic and genotypic changes among clinical isolates. This study also shows successful integration of NGS in a clinical microbiology lab to validate phenotypic changes of daptomycin nonsusceptibility and to help design future infection control and antibiotic stewardship endeavors.

Disclosures. **A. Dhand**, Merck: Speaker's Bureau, Speaker honorarium. Astellas: Scientific Advisor, Consulting fee.

1799. Impact of Real-Time Electronic Notifications to Pharmacists of Rapid Diagnostic Blood Culture Results

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Background. Rapid diagnostic tests that utilize multiplex PCR technology provide faster time to pathogen identification, but maximizing the impact on outcomes is dependent upon who is available to respond to test results. In June 2017, pharmacists began receiving in-basket notifications of positive results from the institution's FilmArray BCID assay. The objective of this study was to determine the impact on antibiotic utilization associated with this method of communicating results.

Methods. This was a retrospective, observational, before-and-after study at an academic medical center with an established stewardship program. Inclusion criteria: Adult patients age ≥18 admitted to an ICU or oncology unit with ≥1 positive blood culture containing a gram-positive organism identified by FilmArray BCID. Patients with polymicrobial infection, concomitant infection caused by a different organism, antibiotics started before admission, or death prior to organism identification were excluded. Data were collected during a 4-month period before (PRE) and a 4-month period after (POST) implementation of in-basket notifications. Stewardship metrics and other outcome measures were compared between the two groups. Pharmacists received no targeted stewardship training on how to respond to results.

Results. Ninety-two patients met study criteria (49 PRE and 43 POST). Patients were age 62 ± 16, male (55%), and 77 (84%) were located in an ICU. Median Charlson Comorbidity Index was 4 and Pitt Bacteremia Score was 1. Sixty-seven patients were considered to have noncontaminant bloodstream infection. Median results for these patients are listed in the table. Patients with contaminants (n = 25) had 3.5 and 7 antibiotic-free days in the PRE and POST groups, respectively (P = 0.34).

Conclusion. In-basket notifications did not significantly improve antibiotic utilization or clinical outcomes. Active interventions and antimicrobial stewardship initiatives are needed in combination with rapid diagnostic tests.

	PRE (n = 35)	POST (n = 32)	P-value
Time to active therapy (hours)	0.85	3.2	0.33
Time to optimal abx (hours)	47.4	44.4	0.43
Time to de-escalation (hours)	48.4	46.8	0.24
Defined daily doses	10.4	10.4	0.81
Days of therapy	13	11	0.70
In-hospital mortality, n (%)	9 (26)	8 (25)	0.98
Length of stay from positive culture (days)	9.6	7.9	0.94

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

1800. Clinical Impact of Real-Time Predictive Model to Facilitate Antibiotic Prescribing in Gram-Negative Bacteremia

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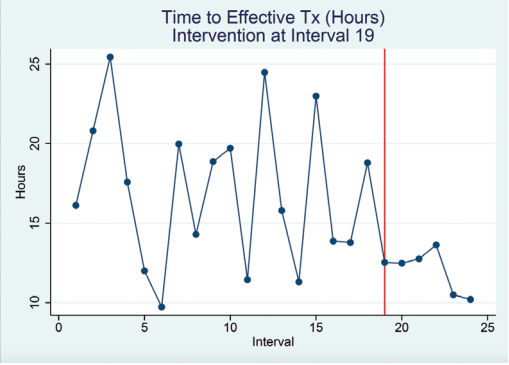
Background. Delay in effective antibiotic administration in severe infections such as bacteremia is associated with worse clinical outcomes. We implemented previously validated software that uses real-time predictive modeling to determine patient-specific antibiograms (PS-ABG). The software allowed prescribers 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.



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