BMD and ETEST were 1/1 and 1.5/1.5 mg/l, respectively. Failure occurred in 18%; 26% had AKI. Mean (SD) VAN duration was 18 (14) days. Mean (SD) AUC_{DAY2} was 586.9 (235.5) and 44% and 73% of patients achieved an $AUC_{DAY2}/MIC_{BMD} \geq 650$ and $AUC_{DAY2}/MIC_{ETEST} \geq 320$. In the multivariate analyses (Figure 1), failure was not significantly different between AUC_{DAY2}/MIC groups. In contrast, AKI was significantly more common in patients with an $AUC_{DAY2}/MIC_{ETEST} > = 320$.

Conclusion. Achievement of higher VAN AUC_{DAY2}/MIC exposures for patients with MRSA BSIs were not associated with better outcomes and were found to result in increased AKI. Clinicians should assess the benefits vs. risks of using VAN regimens that confer high AUC_{DAY2}/MIC exposures for patients with MRSA BSIs.

Figure 1. Comparisons of Outcomes between AUC_DAY2/MIC Exposure Groups
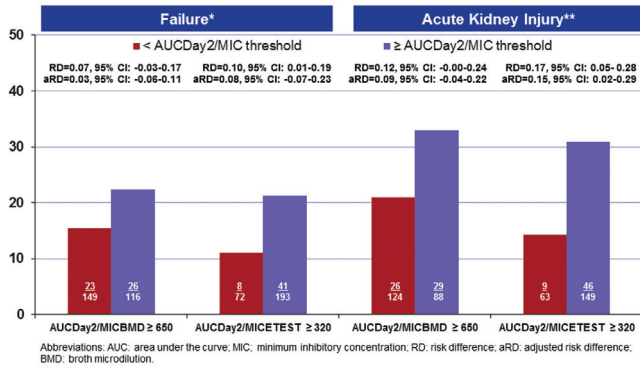
Abbreviations: AUC: area under the curve; MIC: minimum inhibitory concentration; RD: risk difference; aRD: adjusted risk difference; BMD: broth microdilution.

*All variables associated with failure at P ≤ 0.1 and considered at model entry included: prior receipt of vancomycin, type of MRSA infection (community vs. hospital/healthcare), "other" source of infection, pre-existing valvular heart disease, heart failure, APACHE, age, creatinine clearance at baseline, infective endocarditis, and presence of prosthetic material.
**Patients with Baseline Serum Creatinine (< 2.0 mg/dL). All variables associated with acute kidney injury at P ≤ 0.1 and considered at model entry included: race, prior surgery, urinary source, prior hospital length of stay, creatinine clearance baseline, and prior vancomycin.

986. Comparing the Outcomes of Adults with *Enterobacteriaceae* Bacteremia Receiving Short-Course vs Prolonged-Course Antibiotic Therapy

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Background. The recommended duration of antibiotic treatment for *Enterobacteriaceae* bacteremia is between 7 and 14 days. We compared the clinical outcomes of patients receiving short-course (6–10 days) vs prolonged-course (11–15 days) antibiotic therapy for *Enterobacteriaceae* bacteremia.

Methods. A retrospective cohort study was conducted at The Johns Hopkins Hospital, The University of Maryland Medical Center, and The Hospital of the University of Pennsylvania including patients with monomicrobial *Enterobacteriaceae* bacteremia treated with *in vitro* active antibiotic therapy in the range of 6–15 days between 2008 and 2014. 1:1 nearest neighbor propensity score matching without replacement was performed, prior to regression analysis, to estimate the risk of all-cause mortality within 30 days after the end of antibiotic treatment for patients receiving short vs. prolonged durations of antibiotic therapy. Secondary outcomes included *Clostridium difficile* infection (CDI) and the emergence of multidrug-resistant Gram-negative (MDRGN) bacteria within 30 days after the end of antibiotic therapy.

Results. A total of 1,769 patients met eligibility criteria. There were 385 matched pairs who were well-balanced on baseline characteristics. The median duration of therapy in the short-course group and prolonged-course group was 8 days (interquartile range (IQR) 7–9 days) and 15 days (IQR 13–15 days), respectively. No difference in all-cause mortality between short- and prolonged-course treatment groups was observed (adjusted hazard ratio [aHR] 1.00; 95% CI 0.62–1.63). Rates of CDI were similar between the treatment groups (OR 1.17; 95% CI 0.39–3.51). There was a non-significant protective effect of short-course antibiotic therapy on the emergence of MDRGN bacteria (OR 0.59; 95% CI 0.32–1.09 $P = 0.09$).

Conclusion. Short courses of antibiotic therapy yields similar clinical outcomes to prolonged courses of antibiotic therapy for *Enterobacteriaceae* bacteremia, and may protect against subsequent MDRGN emergence.

Disclosures. All authors: No reported disclosures.

987. Infectious Disease Consultation Is Associated with Decreased Mortality with *Enterococcal* Bloodstream Infections

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Background. *Enterococcal* bloodstream infections (EBSI) have been attributed with significant morbidity and mortality. The objective of this study was to determine whether IDC is associated with improved mortality in patients hospitalized with EBSI.

Methods. This is a cross-sectional study of patients admitted to the University of Alabama Health System between January 1, 2015 and June 30, 2016 who had EBSI. Patients who died within 2 days of hospitalization were excluded. Categorical variables were analyzed with chi-square or Fisher's exact test and continuous variables were analyzed with a *t*-test or Wilcoxon rank-sums test when appropriate. A *P*-value < 0.05 was considered significant. Logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CI) for factors associated with 30-day in-hospital mortality.

Results. A total of 213 patients met the case definition. One hundred and thirty-four (63%) received IDC. Baseline patient demographics and comorbidities were similar in both groups. Patients with IDC were more likely to have repeated blood cultures (99% vs. 72%, $P < 0.001$), echocardiogram performed (77% vs. 46%, $P < 0.001$), and interventions for source control (19% vs 6%, $P = 0.01$). Patients without IDC were more likely to have inappropriate antibiotic treatment or no antibiotics (20% vs. 0%, $P < 0.001$) as well as inappropriate duration of therapy (54% vs. 10%, $P < 0.001$). There were no differences in the rates of recurrent bacteremia or readmission within 60 days. Patients who did not receive IDC had higher 30-day in-hospital mortality (27% vs. 13%, $P = 0.02$). Having an echocardiogram (OR 2.75, 95% CI 1.36–5.55), surgical intervention (OR 3.11, 95% CI 1.07–9.05) and an IV catheter (OR 3.90, 95% CI 1.39–10.88) were associated with increased likelihood of IDC while inappropriate duration of antibiotics was associated with an 87% decreased likelihood of IDC (OR 0.13, 95% CI 0.06–0.29). The strongest association observed with 30-day mortality was inappropriate duration of antibiotics (OR 4.93, 95% CI 1.93–12.61).

Conclusion. IDC was associated with reduced 30-day in-hospital mortality in patients with EBSI. Although further investigation is warranted, the results of this study suggest that early involvement of ID specialists in EBSI may lead to better outcomes.

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988. "Big data" and Gram-negative Resistance: A Multiple Logistic Regression Model Using EMR Data to Predict Carbapenem Resistance in Patients with *Klebsiella pneumoniae* Bloodstream Infection

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Background. The timely identification of carbapenem resistance is essential in the management of patients with *Klebsiella pneumoniae* bloodstream infection (BSI). An algorithm using electronic medical record (EMR) data to quickly predict resistance could potentially help guide therapy until more definitive resistance testing results are available.

Methods. All cases of *K. pneumoniae* BSI at Mount Sinai Hospital from September 2012 through September 2016 were identified. Cases of persistent BSI or recurrent BSI

within 2 weeks were included only once. Patients with recurrent BSI after more than 2 weeks of negative blood cultures were considered distinct cases and included more than once. Carbapenem resistance was defined as an imipenem minimum inhibitory concentration of ≥ 2 μg/ml. Extensive EMR data for each patient were compiled into a relational database using SQLite. Possible risk factors for carbapenem resistance were queried from the database and analyzed via univariate methods. Significant factors were then entered into a multiple logistic regression model in a forward stepwise approach using SPSS.

Results. A total of 613 cases of *K. pneumoniae* BSI were identified in 540 unique patients. The overall incidence of imipenem resistance was 10% (61 cases). Significant markers of resistance included in the final model were (1) prior colonization with imipenem-resistant *Klebsiella* pneumoniae; (2) hospital unit (defined as high-risk unit, low-risk unit, and emergency department); (3) total inpatient days in the previous 5 years; (4) total days of oral or parenteral antibiotics in the past 2 years; and (5) age >60 years old (Figure 1). The model generated a receiver operating characteristic curve with an area under the curve of 0.75 (Figure 2). At a cut point of 0.083, the model correctly predicted 72% of imipenem-resistant cases while incorrectly labeling 32% of susceptible cases as resistant (Sn = 72%, Sp = 63%, Figure 3).

Conclusion. A multiple logistic regression model using EMR data can generate immediate, clinically useful predictions of carbapenem resistance in patients with *K. pneumoniae* BSI. Larger data sets are needed to improve and validate these findings.

Figure 1. Algorithm variables

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	hx_resistance(1)	2.972	.632	22.103	1	.000	19.524
	location			10.100	2	.006	
	location(1)	.725	.326	4.956	1	.026	2.065
	location(2)	-.898	.646	1.934	1	.164	.408
	Age_over_60(1)	.604	.314	3.702	1	.054	1.829
	All_ABX_2yrs	.008	.003	7.495	1	.006	1.008
	inptdays	-.004	.002	4.460	1	.035	.996
	Constant	-3.014	.364	68.384	1	.000	.049

Figure 2. Receiver operating characteristic curve
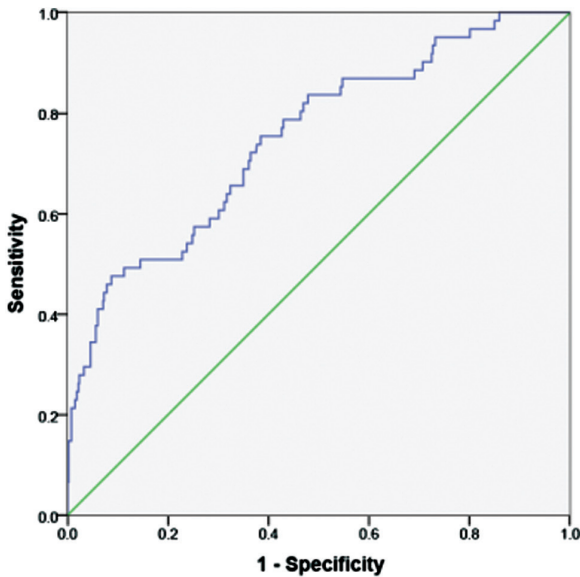
Figure 3. Classification table

			Predicted		
			imi		Percentage Correct
Observed			imi-S	imi-R	
Step 1	imi	imi-S	351	201	63.6
		imi-R	17	44	72.1
	Overall Percentage				64.4

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989. Direct Detection and Identification of Prosthetic Joint Pathogens in Synovial Fluid (SF) by Metagenomic Shotgun Sequencing

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Session: 133. Diagnostics and Why They Matter
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Background. Detection and identification of microorganism(s) involved in periprosthetic joint infection (PJI) can inform surgical management and directed antibiotic therapy. Metagenomic shotgun sequencing is a powerful tool with the potential to change how many PJIs are diagnosed as it allows direct detection and identification of pathogens in clinical specimens. In the largest series to date, we utilized a metagenomics-based approach applied to SF to define potential microbial etiologies of failed total knee arthroplasties (TKAs).

Methods. Synovial fluid was collected from 112 failed TKAs [74 PJI and 38 aseptic implant failure (AF)] via preoperative arthrocentesis. Cell count and differential, standardized culture and DNA-based metagenomic shotgun sequencing were performed. Human DNA was depleted using the MolYsis basic kit prior to DNA extraction, whole genome amplification, and sequencing. Taxonomic assignment of reads and pathogen identification was achieved using a pipeline incorporating k-mer- and marker gene-based classification software. A scheme for analysis and filtration of false-positives was created and applied, incorporating cut-offs for the number of reads, quality scores, and coverage across a reference genome. Patients were classified as having PJI using the IDSA criteria and expert review. Analyses were recorded as percent agreement, with 95% confidence intervals (CI), of metagenomics to SF culture.

Results. Metagenomic analysis identified the known pathogen in 54 (90%) (CI, 79.5%–96.2%) of the 60 culture-positive PJIs analyzed and one (2%) (CI, 0.0%–8.9%) potential polymicrobial infection not detected by culture. For the 14 culture-negative PJIs tested, metagenomics showed 79% (CI, 49.2%–95.3%) agreement for negative findings; potential pathogens were identified in three (21%) (CI, 4.7%–50.8%) culture-negative PJI cases, with one being polymicrobial. Of the 37 culture-negative AF cases, metagenomics showed 97% (CI, 85.8%–99.9%) agreement with negative culture and identified one (3%) (CI, 0.0%–14.2%) potential pathogen. For the one culture-positive AF case, metagenomic results were negative, suggesting possible culture contamination.

Conclusion. Metagenomic shotgun sequencing performed on SF can be used to diagnose PJI and may be particularly useful for culture-negative PJI.

Disclosures. **R. Patel**, ASM: Board Member, None; CD Diagnostics, BioFire, Curetis, Merck, Hutchison Biofilm Medical Solutions, Accelerate Diagnostics, Allergan, and The Medicines Company: Grant Investigator, Grant recipient; Curetis: Consultant, Monies paid to my employer; A patent on Bordetella pertussis/parapertussis PCR issued, a patent on a device/method for sonication with royalties paid by Samsung to Mayo Clinic, and a patent on an anti-biofilm substance issued: Patents, Patents, any money is paid to my employer; Actelion: DSMB, Money paid to my employer; ASM and IDSA: Editor's stipends, Editor's stipends; NBME, Up-to-Date and the Infectious Diseases Board Review Course: NBME, Up-to-Date and the Infectious Diseases Board Review Course, Honoraria; Roche, ASM, and IDSA: Travel reimbursement, Travel reimbursement

990. Clinical Impact of Two Different Multiplex Respiratory Panel Assays on Management of Hospitalized Children Aged ≤24 months

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Session: 133. Diagnostics and Why They Matter
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Background. Highly multiplexed molecular assays are popular in clinical laboratories due their high sensitivity, specificity and relatively rapid turn-around time (TAT) for results. Luminex™ respiratory viral panel (RVP) detects 12 respiratory viruses, while BioFire™ respiratory panel (RP) detects 20 respiratory pathogens (17 viruses, 3 bacteria). The aim of the current study was to compare the impact of RVP and RP assay on management of hospitalized children aged ≤24 months.

Methods. Retrospective data were collected to compare the clinical impact from two multiplex molecular assays (RVP, December 2008–May 2012; RP August 2012–June 2015) on management and outcomes of hospitalized patients. Patients aged ≤24 months and positive for at least one respiratory virus were included. Patients who were (1) receiving immune suppressive therapy, (2) neonates requiring intensive care, or (3) hospitalized for >7 days were excluded.

Results. A total of 810 patients in RVP and 2,095 patients in RP group were included. The median TAT for RVP and RP assay were 29 hours (IQR 26–58 hours) and 4 hours (IQR 2–8 hours), respectively ($P < 0.001$). Significantly higher number of children in RVP group (44%, 357/810) received empiric antibiotic therapy compared with RP group (28%, 595/2095) ($P < 0.001$). Following PCR test reporting, the rate of antibiotic discontinuation was higher in the RP group (23%, 135/595) vs. RVP group (16%, 56/357) ($P < 0.001$). Antibiotics were discontinued more often in older children aged 6–24 months (23%, 113/492) compared with children aged < 60 days (11%, 34/297) ($P < 0.001$). Following positive influenza test results, more children received timely oseltamivir in the RP group (85%, 48/56) compared with the RVP group (17%, 7/41) ($P < 0.001$). The median length