Results. Out of 2,576 articles, 9 clinical studies (8 retrospective case series and 1 prospective single-center trial) met the eligibility criteria. In total, 221 out of 265 (83.4%) evaluated adult patients received a minocycline-based antimicrobial regimen and 44 out of 265 (16.6%) received other antimicrobial agents (most frequently aminoglycocides); 198 out of 216 (91.7%) patients with available data, received minocycline as part of an antimicrobial combination regimen (most frequently colistin and carbapenems). Pneumonia was the most prevalent infection (81.5% with 50.4% ventilator associated pneumonias). Clinical and microbiological success rates in the minocycline group were 72.4% and 59.7%, respectively. Mortality rate was 21.2% among 165 patients with relevant data. In the non-minocycline group, clinical and microbiological cure rates were 45.5% and 18.2%, respectively.

Conclusion. In this systematic review, minocycline demonstrated promising activity against MDR-AB isolates. This study could set the grounds for further research with large randomized, controlled trials that would explore and establish the role of minocycline in the treatment of MDR-AB-associated infections.

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2414. Real-World Evaluation of Patient Characteristics and Outcomes of Patients Treated With Ceftolozane/Tazobactam Across 253 US Hospitals

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Background. Treatment of patients with Gram negative infections is increasingly difficult due to rising resistance to commonly used agents. Ceftolozane/tazobactam (C/T) is a potent anti-pseudomonal agent with broad Gram-negative coverage, that is indicated for cUTI and cIAI and currently being studied for ventilated nosocomial pneumonia. This study evaluates C/T in a large database of US hospitals to better understand treatment patterns and associated outcomes.

Methods. This is a retrospective cohort of adult hospitalized patients in the Premier Healthcare Database (PHD) from January 1, 2015 to June 30, 2017, who received ≥2 consecutive days of C/T. The PHD contains demographic, clinical and healthcare resource utilization. Microbiology data are available from a subset of PHD hospitals. Multidrug resistance (MDR) was resistance or intermediate to 1 or more agents in at least 3 classes. Outcomes included hospital length of stay (LOS), 30-day mortality, and readmissions (all cause and infection-related).

Results. A total of 1490 patients across 253 hospitals met study criteria. Mean age was 59.1 ± 17.5 years, 57% were male, and 65% were Caucasian. The most common comorbidities were chronic pulmonary disease (36%), renal disease (34%), and congestive heart failure (25%). 27% of patients had a prior hospitalization within 30 days. The mean Charlson score was 3 ± 2.4. Over half (55%) of patients were in the ICU, 49% were mechanically ventilated and 15% were on dialysis. Within the 259 patients with microbiology data, the most prevalent pathogen was *Pseudomonas aeruginosa* (78%). The median (IQR) number of days from admission to first day of C/T was 6 (2–15). Patients received a median (IQR) 7 (4–11) days of C/T. The median (IQR) LOS after the first dose of C/T was 10 (6–18) days. The 30-day mortality rate was 9%. All cause and infection related readmissions were 17 and 9%, respectively.

Conclusion. Most of C/Ts usage was among critically ill, complex patients treated in the intensive care unit with *P. aeruginosa.* In spite of the complex nature of these patients, the outcomes among patients treated with C/T were positive and provides needed real-world evidence. Further studies with a comparator group will allow further interpretation.

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2415. Comparison of Minocycline MIC's Obtained by Etest to Those Obtained by Broth Microdilution in a Bank of Isolates of *Acinetobacter baumannii* Collected in Southeastern Michigan

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Background. Minocycline is an important antibacterial for the management of AB infections. Discordance in tigecycline susceptibilities between BMD and ET has been as high as 43% (a ≥log 2 dilution higher MIC by ET). As many automated susceptibility panels do not include minocycline clinicians must rely on ET results. This analysis assesses the discordance between methodologies for minocycline and compares activity of minocycline and tigecycline against a clinical set of AB isolates from Southeast Michigan.

Methods. Testing using BMD and ET were done on 386 isolates of AB from 5 hospitals. Results were compared using FDA breakpoints with BMD considered the gold-standard. Correlations were defined as: (i) essential agreement (EA) if the ET MIC was identical to or 1 doubling dilution from the BMD MIC, (ii) categorical agreement (CA) if results via BMD and ET were the same susceptibility category, (iii) minor error if the isolate was intermediate by either test, but either susceptible or resistant by the other test, (iv) a major error if the isolate was false resistant by ET, and (v) a very major error if ET was false susceptible. Comparative BMD susceptibility between tigecycline and minocycline was also assessed.

Results. Of the 386 isolates of AB, 87% were susceptible to minocycline by BMD and 77% by ET (9.6% difference, $P < 0.001$). MIC comparisons are shown in Table 1. EA occurred in 80% of isolates and CA in 87%. Discordant results included 47 minor errors, 11 major errors, and 0 very major errors. 14% of isolates had >1 double dilution difference between the methodologies and 4% had >2 double dilution differences. Susceptibility rates to tigecycline and minocycline were both 87%, with 11% of tigecycline nonsusceptible isolates susceptible to minocycline and 4% of minocycline nonsusceptible isolates susceptible to tigecycline.

Conclusion. Minocycline provides excellent activity against AB. ET provides reliable susceptibility results in comparison to BMD.

Table 1: Minocycline Susceptibility Comparing ET vs. BMD

		ET, *n* (%)						
BMD, *n* (%)	MIC	≤0.25	0.5	1	2	4	8	>8
	>8	0	0	0	0	0	0	18(4.7%)
	8	0	0	0	0	2(0.5%)	13(3.4%)	17 4.4%)
	4	2 (0.5%)	0	1(0.25%)	3 (0.8%)	5(1.3%)	10(2.6%)	7(1.8%)
	2	0	1(0.25%)	2 (0.5%)	33 (8.5%)	15(1.3%)	11(2.8%)	2(0.5%)
	1	0	2 (0.5%)	14(3.6%)	78(20.2%)	20(5.2%)	7 (1.8%)	2 (0.5%)
	0.5	1(0.25%)	6 (1.6%)	14(3.6%)	6(1.6%)	0	0	0
	≤0.25	78(20.2%)	9 (2.3%)	5 (1.3%)	2(0.5%)	0	0	0

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2416. Risk Factors and Outcomes of Bacteremia Caused by Carbapenem-Resistant Enterobacteriaceae Compared With Carbapenem Susceptible Enterobacteriaceae

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Background. Due to shrinking therapeutic options, infections due to Carbapenem-resistant enterobacteriaceae (CRE) are an urgent threat in healthcare systems across the world. While the CRE phenotype is determined by a number a different genes, the metallo β-lactamases such as the NDM, are particularly prevalent in the South Asian region. Data regarding infections with CRE caused by these strains is relatively limited. Our objective was to compare the risk factors and outcomes (mortality and length of hospitalization) of bacteremia secondary to CRE with bacteremia secondary to carbapenem susceptible enterobacteriaceae (CSE).

Methods. We conducted a cross-sectional study on patients admitted between 2013 and 2016, to a large tertiary care hospital in Karachi, Pakistan. Patients with CRE bacteremia were matched for the same year with patients with bacteremia due to CSE. Patients with polymicrobial blood cultures were excluded. Clinical data of these patients were obtained using a structured performa.

Results. A total of 131 patients were enrolled (65 CRE and 66 CSE). The mean age was similar in both groups (51.8 years and 57.1 years in CRE and CSE patients respectively). Compared with CSE, CRE bacteremia was more likely to occur in patients with Diabetes Mellitus or those with a tracheostomy ($P = 0.002$ and 0.014, respectively). The most common source of CRE bacteremia was central line associated (24.6% of all cases) as opposed to urinary tract infections in those with CSE bacteremia (62.1% of all cases). Fewer patients with CRE bacteremia received appropriate antibiotics (72.3% vs. 81.8%). Mortality was over three times higher in patients with CRE (41.5% vs. 12.1%, $P = 0.001$). The mortality remained higher when adjusted for the severity of illness using the PITT-bacteremia score. Increased mortality was also associated with central venous catheterization in both CRE and CSE bacteremia, while urinary catheterization and hemodialysis were associated with mortality in patients in CSE bacteremia only. While length of ICU stay was similar between the two groups, the median length of hospital stay was longer in patients with CRE (median of 8 days vs. 6 days, $P = 0.021$)

Conclusion. CRE bacteremia was more likely associated with central lines and led to significantly higher mortality and length of stay.

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2417. Risk Factors, Response to Empiric Therapy, and Healthcare Utilization Among Children With UTI Due to Extended Spectrum β-Lactamase-Producing Enterobacteriaceae

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