Results. *K. pneumoniae* (n = 58; 48%) and *Enterobacter spp.* (n = 40; 33%) comprised the majority of CRE.

Table 1: CRE Susceptibility

Antimicrobials	EUCAST % Susceptibility (Breakpoint)	CLSI/FDA % Susceptibility (Breakpoint)	USCAST % Susceptibility (Breakpoint)	*P*-Value
Aminoglycosides				
Amikacin	66% (8)	86% (16)	55% (4)	<0.001
Gentamicin	21% (2)	31% (4)	21% (2)	<0.001
Tobramycin	15% (2)	18% (4)	14% (1)	0.063
Cyclines				
Minocycline	–	16% (4)	1% (1)	<0.001
Tigecycline	43% (1)	84% (2)	43% (1)	<0.001
Fluoroquinolones				
Levofloxacin	6% (0.5)	15% (2)	6% (0.5)	0.001

$P < 0.05$ are significant and indicate differences between CLSI/FDA and USCAST susceptibility.

Conclusion. Implementation of the proposed USCAST susceptibility breakpoints will impact clinician antimicrobial choice regarding the treatment of infections caused by CRE. Amikacin and tigecycline susceptibility markedly decreased when utilizing the proposed USCAST breakpoints.

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2431. Evaluation of Clinical Outcomes in Bacteremia Due to AmpC β-Lactamase Producing Organisms Stratified by Treatment

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Session: 250. Treatment of AMR Infections

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Background. Enterobacteriaceae and *Pseudomonas aeruginosa* are common bloodstream pathogens with variable AmpC β-lactamase (AmpC) incidence. The clinical utility of treatment with non-carbapenem/cefepime options remains unclear. The objective of this study was to compare the clinical outcomes for patients receiving a carbapenem or cefepime (CC) and alternative therapy (AT) for bacteremia caused by organisms known to produce AmpC.

Methods. Hospitalized adults with a confirmed mono-microbial bacteremia admitted from June 2016 to December 2017 were included. Patients were stratified by definitive therapy (DT) with CC or AT. The AT group was treated with fluoroquinolones, third-generation cephalosporins, piperacillin–tazobactam, aztreonam, or tobramycin. The primary outcome was in-hospital mortality. Secondary outcomes included treatment failure, microbiological failure, hospital length of stay (LOS), and intensive care unit LOS. Multiple regression analysis was used to adjust for potential confounding variables.

Results. Of 68 patients meeting eligibility criteria, 46% received CC for DT. Enterobacteriaceae were isolated in 45% of patients in the CC group. In-hospital mortality was 32% and 3% (P = 0.0017) in the CC and AT groups, respectively. Source control, APACHE II score on the date of index culture, and immune status did not differ between groups. Definitive CC therapy was independently associated with mortality (odds ratio, 15.17; 95% confidence interval, 1.69–135.76; P = 0.0150). Only 6 (9%) patients received AT as empiric and DT. Those who received definitive AT received a median of 5 days (interquartile range, 3–9 days) of CC prior to being switched to AT.

Conclusion. While most patients received empiric CC, definitive treatment with CC was found to be an independent predictor of in-hospital mortality. These findings suggest that AT may be a de-escalation treatment strategy for clinicians to consider. However, these results should be confirmed in a larger population.

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2432. Appropriateness of Empiric Extended-Infusion Piperacillin/Tazobactam in the Intensive Care Unit

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Background. Gram-negative (GN) infections in ICU patients have increased antibiotic resistance owing to higher minimum inhibitory concentrations (MICs). Piperacillin/tazobactam (PTZ) 3.375 g extended infusion (EI) may be used as an empiric agent. GN organisms with PTZ MICs > 16/4 may not be adequately covered by this regimen. The objective of this study was to evaluate MICs of GN isolates from the ICU to determine whether PTZ 3.375 g EI is an appropriate empiric regimen for ICU patients. Appropriateness of empiric antibiotic therapy was defined as PTZ MIC ≤16/4 in greater than 80% of isolates. The secondary objective was to evaluate patient specific risk factors that may be associated with elevated PTZ MICs in GN pathogens.

Methods. All ICU patients admitted from January to December 2017 with a confirmed GN pathogen from a non-urinary source were included. Patients were excluded if they had cystic fibrosis, cultures obtained >48 hours prior to ICU admission, or they were incarcerated. Patients' electronic medical records were reviewed for the following data: age, sex, ethnicity, location prior to ICU admission, GN pathogen, culture source, risk factors for multi-drug-resistant organisms (dialysis, injection drug use, indwelling catheter, wounds/trauma), pathogen susceptibility profile, risk modifying co-morbidities (diabetes, heart failure, chronic kidney disease, and liver disease) and creatinine clearance.

Results. 231 patients were included in the study. The average patient was 56.7 years old ±16.95. The majority of patients were white (64.1%) and male (69.7%). There were no significant differences in baseline characteristics between patients with PTZ MICs >16/4 and those with MICs ≤16/4. *Pseudomonas aeruginosa* (41%) was the primary organism identified and 28% of all GN isolates had MICs >16/4. Dialysis (P = 0.028), IV antibiotics (P < 0.001) and presence of wounds or trauma (P = 0.018) were all associated with elevated MICs.

Conclusion. Current PTZ EI 3.375g dosing may not provide adequate empiric coverage of GN pathogens for ICU patients especially for patients who received previous IV antibiotics, are on dialysis, or have the presence of wounds or trauma.

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2433. Evaluation of Meropenem (MEM) in Combination With Colistin (COL) Against Colistin-Resistant Extensively Drug-Resistant (XRD) Gram-Negative Bacteria

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Background. The treatment of XDR Gram-negative bacilli poses a significant clinical challenge with limited treatment options. Colistin-resistant XRD Gram-negative bacteria are becoming more commonplace in the clinical setting. Combination therapy is resorted to for treatment of such strains. The objective of this in-vitro study was to evaluate the synergistic effect of the combination with COL and MEM against Colistin-resistant XDR Gram-negative bacilli.

Methods. In this study, a total of 30 Colistin-resistant XDR Gram-negative clinical isolates were evaluated, including five isolates of Pseudomonas aeruginosa, twenty-four isolates of Acinetobacter baumannii and one isolate of Klebsiella pneumonia. Minimum inhibitory concentrations (MICs) were determined with COL and MEM for each strain by broth microdilution. COL and MEM MICs were measured in the presence of 0.25- to 0.5- × the MIC of the other antibiotic to determine the ability to lower MIC values. Time-kill assays were performed with each agent alone and in combination to evaluate the potential for synergistic interactions. Additive and synergistic effects were defined as 1- to 2-$\log_{10}$ and ≥ 2-$\log_{10}$ reductions in CFU/mL from the most active single agent at 24 hours, respectively.

Results. All isolates were resistant to COL (MIC90 32 mg/L), whereas all bacteria with except one A. baumannii, were resistant to MEM (MIC90 >64 mg/L). Zero- to greater than nine-fold decrease in MEM MICs were observed in combination with COL at 0.25- to 0.5 × MIC. COL MICs decreased by 0 to >8-fold when combined with MEM. MEM plus COL demonstrated synergistic activity against 70% strains tested and additive in 3% of the tested strains at 24 h in time-kill. The combination was indifferent in 26% of the tested strains.

Conclusion. These data indicate that the addition of MEM to COL therapy in colistin resistant XDR Gram-negative bacteria demonstrate synergistic or additive effects against a majority of XDR Gram-negative bacteria. The combination might be a promising therapeutic option for treatment of these problem pathogens.

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2434. Review of Linezolid (LZD) Use and Onset of Toxicity in 4 Belgian Hospital Centers: A Retrospective Study

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