Background. Klebsiella pneumoniae carbapenemase (KPC) and Verona inte-

Results. As of December 31, 2017, a total of 156 CP-CRE isolates had been identi-

Disclosures. All authors: No reported disclosures.

Conclusion. KPC is the predominant carbapenemase in Kentucky and is more

705. Four Superbugs Isolated From a Single Patient in the United States: E. coli (EC) and K. pneumoniae (KP) Harborring NDM-5, P. aeruginosa (PA) Harborring NDM-1 and Candida auris

706. Ceftazidime-Avibactam (CZA) and Meropenem (MER) Are Synergistic and Bactericidal Against Genetically Diverse KPC Producing Klebsiella pneumoniae (Kp)

Methods. We tested isolates for responses to CZA alone (1 and 4 µg/mL, avibac-

Conclusion. A two-drug combination of CZA + MEM results in high rates of

Discussion. Thirteen KPC-Kp isolates were studied (22 KPC-2 and 8 KPC-3); all iso-

The CRE were resistant to all β-lactams, including ceftazidime/avibac-

We previously showed that CZA MICs are higher among KPC-3 Kp

Results. We tested isolates for responses to CZA alone (1 and 4 µg/mL, avibac-

Results. Thirty KPC-Kp isolates were studied (22 KPC-2 and 8 KPC-3); all iso-

Conclusion. We tested various agents in combination with CZA for synergistic and bac-

Methods. We tested isolates for responses to CZA alone (1 and 4 µg/mL, avibac-

Disclosures. W. Miller, Merck: Investigator, Research support. C. Arias, Merck & Co., Inc.: Grant Investigator, Research support. MedGen: Grant Investigator, Research support. Allergan: Grant Investigator, Research support.

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**Table 1:** *N. flava*

| Strain | Colistin (IU/mL) | Ceftriaxone (µg/mL) | Polymyxin B (µg/mL) | aPSCR Results |
|--------|----------------|---------------------|---------------------|---------------|
| NR 5083 | 258 | 187 | 4.0 | >128 | 2.2 | 0.8 | 0.8 | 0.9 | 
| NR 5083 | turb | 160 | 0.36 | 4 | 2.3 | 0.3 | 0.6 | 0.9 | 
|

**Disclosures:** A. C. Uhlemann, Merck: Investigator, Grant recipient.

**Background.** Resistance of P. aeruginosa to β-lactams is a significant public health concern, with the global prevalence of carbapenem-resistant P. aeruginosa (CRP. aeruginosa) increasing in recent years. CRP. aeruginosa is particularly problematic in intensive care units (ICUs) and other healthcare settings, where the organism is frequently encountered in infections that are difficult to treat due to its inherent resistance to many antibiotic classes. The rising prevalence of CRP. aeruginosa has been attributed to the widespread use of broad-spectrum antimicrobials, antibiotic resistance, and the changing epidemiology of healthcare-associated infections.

**Methods.** This study aimed to investigate the epidemiology and antimicrobial susceptibility patterns of CRP. aeruginosa isolates collected from a large academic hospital in the United States. A total of 100 CRP. aeruginosa isolates were collected from various clinical sources, including bloodstream infections, respiratory infections, and wounds. Antimicrobial susceptibility testing was performed using the disk diffusion method, and the results were interpreted according to the Clinical and Laboratory Standards Institute (CLSI) guidelines.

**Results.** The study isolates exhibited high-level resistance to multiple classes of antibiotics, with susceptibility rates for antibiotics such as ceftazidime, imipenem, and meropenem ranging from 5% to 40%. The most commonly used β-lactams, such as piperacillin-tazobactam and carbapenems, showed low susceptibility rates (2%–10%). The presence of extended-spectrum β-lactamases (ESBLs) and carbapenemases was confirmed in a subset of isolates, highlighting the emergence of multidrug-resistant strains.

**Conclusion.** The findings underscore the urgent need for effective strategies to combat CRP. aeruginosa infections, including the development of new antimicrobial agents and the implementation of infection control practices to prevent the spread of multidrug-resistant strains. Further research is needed to understand the factors driving the emergence of resistance and to develop targeted interventions to address these challenges.

700. Incidence and Relatedness of Carbapenemase-Producing Carbapenem-resistant Enterobacteriaceae Infections in Previously Colonized or Infected Patients

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**Session:** 67. Resistance Mechanisms: Gram-Negative

**Background.** Carbapenemase-producing Enterobacteriaceae (CPE) are a growing threat in healthcare settings, particularly in intensive care units (ICUs). These pathogens are associated with high mortality rates and significant healthcare costs. The objective of this study was to characterize the incidence and relatedness of CPE infections in patients with a history of colonization or infection.

**Methods.** This was a retrospective cohort study conducted in a 600-bed tertiary care hospital in Singapore. All patients with a diagnosis of CPE infection or colonization from January 2012 to December 2013 were included. CPE were defined as strains producing KPC, NDM, VIM, OXA-48, or other class A and B β-lactamases. The relatedness of isolates was assessed using multilocus sequence typing (MLST) and pulsed-field gel electrophoresis (PFGE).

**Results.** A total of 42 patients with CPE infections were identified. The most common CPE were KPC-2 and OXA-48. The incidence of CPE infections was 0.3% (42/13,593) in the study period. Of the 42 patients, 35 (83.3%) had a history of colonization. The relatedness analysis showed that 10 out of 35 patients (28.6%) had isolates from the same MLST type, suggesting clonal spread.

**Conclusion.** The incidence of CPE infections in our setting was 0.3%, with a high proportion (83.3%) of patients having a history of colonization. The relatedness analysis indicated a significant risk of clonal transmission in the hospital environment. Further studies are needed to understand the factors driving the emergence of CPE and to develop effective strategies to control their spread.