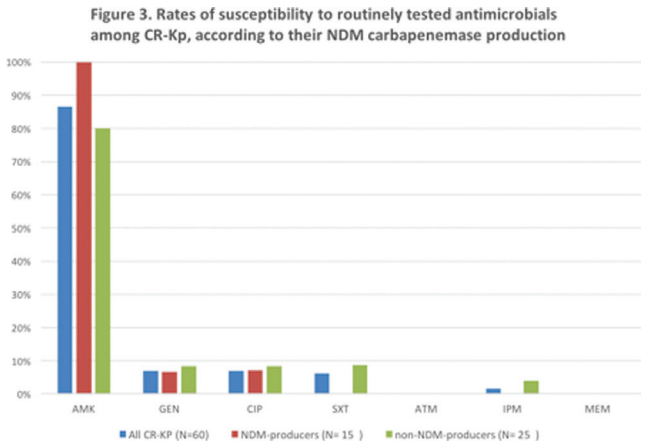

Disclosures. **All authors:** No reported disclosures.

1190. Reduction of Carbapenem-Resistant Enterobacteria (CRE) Infections and Total Polymyxin B Use Due to a Comprehensive Infection Control Strategy in Colombia

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Background. Colombia is an endemic country for CRE infections, with an increased rate of hospital-acquired infection due to this microorganism. Therefore, we have a high empirical use of carbapenem, colistin, and polymyxin B in nosocomial suspected septic patients. Infection control strategies could reduce CRE infection rates and lower antibiotic consumption.

Methods. Since 2014, a Comprehensive Infection control strategy was implemented in our hospital. This strategy included: (1) Hospital daily CHX bathing (4% soap or 2% pads) was applied to all patients in our institution (intensive care units and medical/surgical wards). Additionally, recommendations for patient care were provided to patients and family. (2) Active surveillance of perirectal CRE screening was implemented toward high suspected patients. (3) Isolation of all CRE colonized or-infected patient, and gloves use, and alcohol for hand sanitation was reinforced. To evaluate the effectiveness of this strategy, annually nosocomial infection rates due to CRE were compared. Defined daily dose (DDD) of polymyxin B use was obtained annually.

Results. After introducing this protocol, we found a progressive decrease in CRE bacteremia from 2.24 infections per 10,000 patients-day in 2014, to 1, 26 during 2015, 0.92 in 2016 and 0.78 infections per 10,000 patients day during 2017. This was also correlated to a decrease in the use of polymyxin in the adult population, DDD drop from 2.36 to 1.06.

Conclusion. Universal hospital daily CHX bathing, CRE screening, and Isolation as a comprehensive strategy was effective decreasing CRE nosocomial infections and polymyxin use.

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

1191. Prevalence and Microbiology of Carbapenem Resistance Among Six Gram-Negative Pathogens in Bloodstream Infections in US Hospitals, 2010–2015

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Background. Carbapenem resistance (CR) is a growing threat in hospitals in the United States and worldwide. We evaluated the prevalence and geographic distribution of CR among six most common Gram-negative (GN) bloodstream infection (BSI) pathogens in US hospitals.

Methods. We analyzed microbiology data in a cohort of adults (≥18 years) hospitalized in 181 US hospitals contributing microbiology data to the Premier Healthcare Database (October 2010–September 2015) with blood cultures positive for six most common GN pathogens (*S. maltophilia* assumed 100% CR). We report CR prevalence by pathogen, hospital ward (ICU vs. floor), and census region.

Results. Of the 43,095 GN BSIs included, 1,513 (3.5%) were caused by the six most common CR pathogens (Figure 1). CR was more frequently isolated from patients with an ICU stay (4.7%) vs. those without (2.7%). Nearly 75% (n = 1,100) of CR occurred in nonfermenters (*S. maltophilia*, *P. aeruginosa*, and *A. baumannii*). Among individual organisms, the prevalence of CR—outside of *S. maltophilia*—was highest among *A. baumannii,* 35.1%, and lowest among *E. coli*, 0.2% (Figure 2). Geographically, CR prevalence ranged from highest in the Mountain region (7.1%) to lowest in the West North Central (2.3%) (Figure 3). The maximum CR prevalence occurred in *A. baumannii* from the East North Central (55.7%), and the minimum in *E. coli* from the West North Central (0.05%) regions.

Conclusion. Among six most frequently isolated pathogens in BSI, the overall CR prevalence is 3.5%. The wide variations in prevalence based on organism, location in the hospital, and geography emphasize the clinical importance of knowing local pathogen and resistance patterns in order to optimize empiric treatment.

Figure 1. Distribution of Carbapenem-resistant Gram-negative Pathogens in Bloodstream Infections

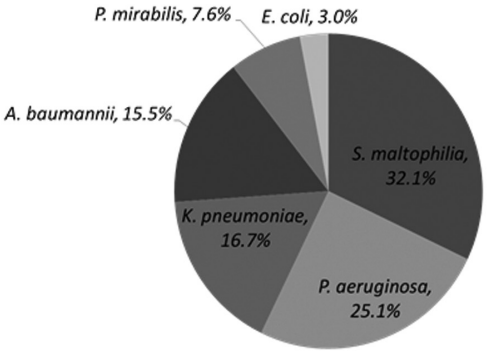


Figure 2. Overall Prevalence of Carbapenem Resistance by Pathogen (%)

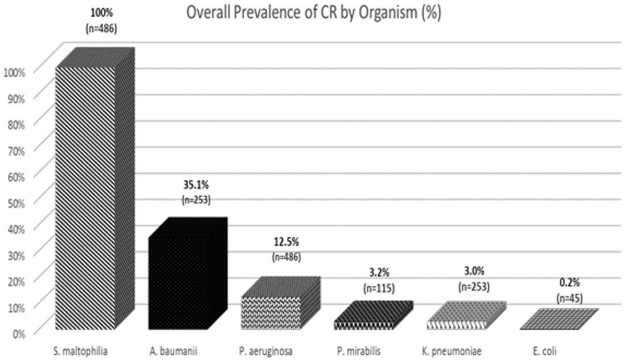
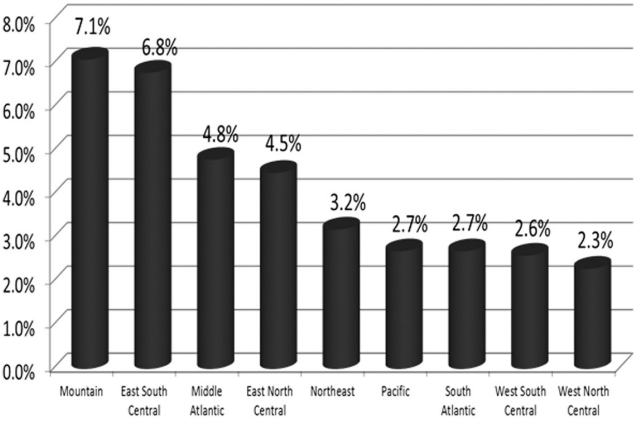


Figure 3. Overall Carbapenem Resistance by US Census



Disclosures. **A. F. Shorr**, Astellas: Consultant and Speaker's Bureau, Consulting fee, Research support and Speaker honorarium. Cidara: Consultant, Consulting fee. Merck & Co.: Consultant and Speaker's Bureau, Consulting fee, Research support and Speaker honorarium. **T. P. Lodise Jr.**, Motif BioSciences: Board Member, Consulting fee.

1192. Identification of a Novel *Enterobacter cloacae* Isolate Producing an IMP-13 Metallo-β-Lactamase

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Background. Metallo-β-lactamases (MBLs) have been identified as emerging resistance determinants in *Enterobacteriaceae*, *A. baumanii,* and *P. aeruginosa*. Early identification of carbapenemase-producing organisms (CPOs) is essential to prevent dissemination within healthcare settings. We report a case of a patient who was blood culture positive for a multidrug-resistant *E. cloacae* which was subsequently found to be positive for the MBL bla_{IMP-13}.

Methods. A 74-year-old female, with no significant past medical or travel history, developed sepsis 2 days after undergoing debulking surgery for stage IIIc ovarian carcinoma. Blood cultures were positive for Gram-negative bacilli and the organisms identified as *Enterobacter* spp. with bla_{IMP} MBL (Verigene). Antimicrobial susceptibility testing demonstrated high-level resistance to all penicillins, ureidopenicillins, cephalosporins, and β-lactam/inhibitor antibiotics, and susceptibility to colistin, tigecycline, and monobactams.

Results. Further testing using micro-broth dilution, BD phoenix, and Etest, demonstrated susceptible MICs to meropenem and imipenem, with intermediate to resistant MICs to ertapenem. The patient was treated with a combination therapy of amikacin, aztreonam, and ceftazidime-avibactam and responded clinically. Per standard protocol, the organism was sent to WI Laboratory of Hygiene for further characterization. Phenotypic testing using the modified carbapenem inactivation test (mCIM) was positive, indicating the presence of a carbapenemase; however, results using Xpert CarbaR (Cepheid) were negative. Subsequent sequencing of the isolate confirmed the presence of $blaI_{MP-13}$.

Conclusion. This was an important case for several reasons. First, bla_{IMP-13} is historically reported in *Pseudomonas aeruginosa*. Indeed, this was the first report of *Enterobacteriaceae* harboring bla_{IMP} in WI. Second, it had unique susceptibility pattern to carbapenems and was not detected by the CarbaR. Third, these data demonstrate clinical success in treating an MBL CPO with a combination anti-microbial regimen, based on an understanding of resistance mechanisms involved. This report calls for more vigilant screening for CPO using both phenotypic and genotypic methods.

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1193. Comparison of the Clinical Outcomes of Patients With IMP-Type Carbapenemase-Producing Carbapenem-Resistant *Enterobacteriaceae* and Carbapenem-Sensitive *Enterobacteriaceae* in Japan

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Background. Carbapenem-resistant *Enterobacteriaceae* (CRE) infections are spreading worldwide and have become a global menace. Different types of carbapenemases contribute to carbapenem resistance. The outcome of patients with IMP-type carbapenemase-producing CRE (IMP-CRE) is not well known.

Methods. A matched case–control study from January 2012 to December 2016 was conducted at NCGM. All unique patients with IMP-CRE isolation were included and matched with carbapenem-sensitive *Enterobacteriaceae* (CSE) patients. Meropenem non-susceptible and/or ceftazidime-resistant *Enterobacteriaceae*, per CLSI criteria, were tested for metallo-β-lactamase production with further confirmation of bla_{IMP} by PCR. Multivariate analyses were conducted for outcomes, adjusting for a propensity score predicting the likelihood of isolation of CRE vs. CSE. The balance of each group was determined by standardized biases <0.25 for variables on baseline characteristics.

Results. In total, 192 patients (96 CRE, 96 CSE) were included (132 *Enterobacter* sp., 60 *Klebsiella pneumoniae*). Isolations sites were sputum (n = 76 [39.6%]), urine (n = 62 [32.3%]), blood (n = 22 [11.3%]), and wound (n = 14 [7.2%]). The median age of the patients was 75 years [IQR: 66–84], and 109 (56.8%) were male. Thirty-one (32.3%) patients with CRE and 55 (57.3%) patients with CSE developed infections. The others were considered as colonization. qSOFA was positive (≥2) in seven patients with CRE infection and nine with CSE infection. In bivariate analysis, mortality and length of hospital stay (LOS) after CRE/CSE isolation were similar between the two groups, even after stratification by bacterial species and infection/colonization. After controlling for the propensity score (table), mortality and LOS remained similar between the two groups.

Conclusion. IMP-CRE might not contribute to the worsened clinical outcomes when compared with CSE. Further evaluations are needed for additional outcome parameters.

Table: Outcomes for Isolation of IMP-CRE, n (%)

			Multivariate analysis[a]		Bivariate Analyses
Variables	CRE (n = 96)	CSE (n = 96)	Adjusted Odds Ratio (95% CI)	P-Value	P-Value
30-day mortality	15 (15.6)	17 (17.7)	0.85 (0.33–2.20)	0.737	0.847
Median length of stay (LOS) after the CRE/CSE isolation excluding death, days (IQR)	30 (14–66)	24 (14–64)	1.33 (0.84–2.13)	0.228	0.582

[a]Controlled for propensity score.

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

1194. Carbapenem-Resistant Enterobacteriaceae in Kentucky: Initial 6 Months of Mechanism Testing

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Background. A global rise in carbapenem-resistant Enterobacteriaceae (CRE) has been noted over the past two decades. State and local data on CRE are necessary to better inform public health interventions.

Methods. Reporting of CRE (i.e., Enterobacteriaceae resistant to any carbapenem or shown to produce a carbapenemase) was mandated in Kentucky in 2015. Voluntary submission of isolates to the Antibiotic Resistance Laboratory Network regional laboratory for carbapenemase testing began September 2017. Demographic data collected as part of reporting included age, sex, county of residence, and inpatient/outpatient status. Descriptive and chi-square analyses were performed.

Results. Between September 1, 2017 and February 28, 2018, 149 CRE were reported to the Kentucky Department for Public Health. Testing for presence of a carbapenemase was performed on 115 isolates (77.2%); 44 (38.3%) were carbapenemase producing (CP)-CRE and *Klebsiella pneumoniae* carbapenemase (KPC) was identified from 38 (86.4%). Also identified were Verona integron-encoded metallo-β-lactamase (VIM; 5, 11.4%) and New Delhi metallo-β-lactamase (NDM; 1, 2.3%). Identification of carbapenemase varied among genera: *Citrobacter* (3/4, 75%), *Klebsiella* (21/40, 52.5%), *Serratia* (2/5, 40%), *Escherichia* (6/20, 30%), *Enterobacter* (11/41, 26.8%), *Proteus* (0/4, 0%), other genera (1/2, 50%). CRE isolates from urban or suburban areas were more likely CP-CRE than were those from rural areas (30/65, 46.2% vs. 14/50, 28%, P = 0.047). Carbapenemase was identified more often among CRE isolates from currently hospitalized patients than from patients whose cultures were collected outside of an acute care hospital (37/70, 52.8% vs. 7/45, 15.6%; P < 0.001).

Conclusion. The percentage of CRE that were CP-CRE in Kentucky was comparable with that reported for the United States (38 vs. 32%). *Klebsiella* spp., the genera historically associated with CP-CRE, made up less than half of CP-CRE. CP isolates were identified from urban, suburban, and rural settings and more frequently from isolates collected in hospitals compared with the community. The additional epidemiology obtained as part of this reporting system has identified metropolitan areas of the state as targets for CRE prevention efforts.

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

1195. Where You Live Matters: United States Region as a Significant Predictor of Mortality for ESBL Infection Based on a Descriptive Study Using NIS Database

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Background. Extended-spectrum β-lactamase (ESBL) enzymes are produced by multidrug-resistant (MDR) pathogens and confer resistance to β-lactam antibiotics. Infections due to MDR organisms, particularly those ESBL producing pathogens, are of major concern worldwide and are associated with prolonged hospital stay and increased case-fatality rate. Carbapenems are the treatment of choice for severe infections however overuse of this class of antibiotics is leading Carbapenemase-producing pathogens. Variations have been observed in the prevalence of ESBL strains from different US regions; however, it is unclear whether morbidity and mortality follow a similar pattern. This study was conducted to explore the incidence of ESBL infections in the inpatient setting and factors that affect morbidity/mortality.