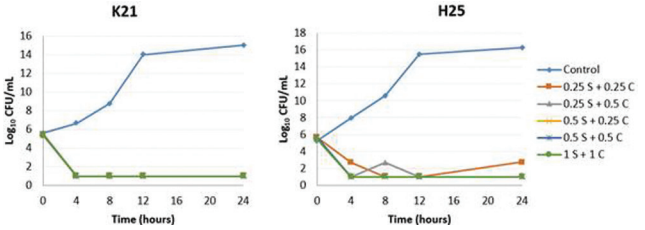

Figure 3: Time–kill curves with various concentrations of colistin (C) and sitafloxacin (S) in combination against two isolates of MDR-AB.

Disclosures. **T. Paiboonvong**, Daiichi Sankyo (Thailand) Ltd.: Grant support, Research support. **P. Montakantikul**, Daiichi Sankyo (Thailand) Ltd.: Grant support, Research grant.

2406. "Real-world" Treatment of Multidrug-Resistant (MDR) or Extensively Drug-Resistant (XDR) *P. aeruginosa* Infections With Ceftolozane/Tazobactam (C/T) vs. a Polymyxin or Aminoglycoside (Poly/AG)-based Regimen: A Multicenter Comparative Effectiveness Study

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Background. The emergence of MDR/XDR *P. aeruginosa* has led to a reliance on suboptimal agents (Poly/AG) for the management of infections due to this pathogen. C/T is a novel agent with excellent *in vitro* activity against resistant *P. aeruginosa* that is indicated for cUTI and cIAI and being reviewed for VABP; however real-world comparative data for invasive infections are lacking. The purpose of this study was to assess comparative rates of clinical cure, mortality, and acute kidney injury (AKI) among patients treated with C/T vs. a Poly/AG based regimen for *P. aeruginosa* infections

Methods. This was a retrospective, multi-site cohort of adult inpatients from January 1, 2012 to February 28, 2018 with infections due to MDR or XDR *P. aeruginosa*. Patients treated for ≥48 hours with C/T or a Poly/AG-based regimen were eligible for inclusion. Patients with a creatinine clearance <20 mL/minute, or those requiring renal replacement therapy at baseline were excluded. Bivariate comparisons for baseline clinical characteristics and outcomes were assessed.

Results. A total of 117 (57 C/T, 60 Poly/AG) patients were included. Baseline characteristics, infection source, severity of illness, and time to appropriate therapy were similar between the treatment groups. Mean age was 58.6 ± 15.1 years, and 70% were male. Common comorbidities included diabetes (35%) and CHF (28%), and the median (IQR) Charlson Comorbidity Index was 3 (1–4). 42% of the population presented with severe sepsis or septic shock, and 68% were in the ICU at the onset of the infection. The most common infections were ventilator associated (54%) or hospital acquired (17%) pneumonia. Combination therapy was more frequently used in the Poly/AG group (72% vs. 12%; $P < 0.001$) Treatment with C/T was associated with a higher rate of clinical cure (79% vs. 62%; $P = 0.046$) and a lower incidence of AKI (7% vs. 33%; $P < 0.001$) compared with Poly/AG based therapy. In hospital mortality rates were similar (28% vs. 37%; $P = 0.33$). No patients receiving C/T had hypersensitivity reactions, neurological adverse events, or *C. difficile* infections.

Conclusion. This multi-center retrospective analysis provides real-world data supporting improved outcomes with C/T compared with Poly/AG based regimens for invasive infections due to MDR/XDR *P. aeruginosa*.

Disclosures. **J. M. Pogue**, Merck: Consultant, Grant Investigator and Speaker's Bureau, Consulting fee, Grant recipient and Speaker honorarium. Allergan: Speaker's Bureau, Speaker honorarium. **K. S. Kaye**, Merck: Consultant and Grant Investigator, Consulting fee and Research grant. **A. Ray**, Merck: Speaker's Bureau, Speaker honorarium. **L. Puzniak**, Merck: Employee, Salary. **F. Perez**, Merck: Grant Investigator, Grant recipient.

2407. Emerging Piperacillin/Tazobactam Resistance in *Escherichia coli* and *Klebsiella* sp.

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Background. Piperacillin / tazobactam (P/T) plays an important role in the empirical therapy of many infections. While *Enterobacteraciae* resistance to P/T remains relatively low in our institution we have identified an increasing number of *E. coli* and *Klebsiella* sp. isolates with intermediate susceptibility or resistance to P/T (P/T-R). We report the increasing prevalence of P/T-R among *E. coli* and *Klebsiella* sp., antimicrobial usage, and attempts to document the mechanism of resistance in these isolates.

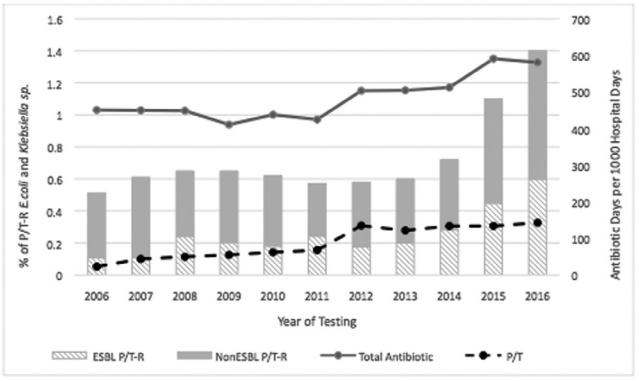
Methods. Antimicrobial susceptibility results using Kirby Bauer disk diffusion method for *E. coli* and *Klebsiella* sp. from all clinical sites (hospitalized patients) were reviewed from January 2006 through December 2016. Duplicates were excluded. Antimicrobial use was expressed as the number of hospital days on antimicrobials per 1000 hospital days. Whole genome sequencing was performed on a subset of isolates identified as P/T-R in order to identify a mechanism of resistance.

Results. From 2006 through 2016 we identified 126,422 *E. coli* and *Klebsiella* sp. isolates; 978 were P/T-R (0.78%). Of these 336 were extended spectrum β lactamase (ESBL) producers. Of the 642 non ESBL- P/T-R, 179 (27.8%) retained susceptibility to all cephalosporins tested. Figure 1 shows the distribution of P/T-R isolates and total antibiotic and P/T use in hospitalized patients. Whole genome sequencing of 4 isolates (*K. pneumoniae* from blood; $n = 3$ and *E. coli* from urine; $n = 1$) showed the presence of Class A β-lactamase genes; SHV ($n = 3$) and TEM ($n = 1$). All isolates showed the presence genes for outer membrane porins and protein efflux pumps; however, there were no detectable mutations that could explain the phenotypic susceptibility profile seen in these isolates.

Conclusion. We describe a novel phenotypic resistance pattern to P/T in *E. coli* and *Klebsiella* sp. which doubled in incidence from 2013 to 2016. This is concurrent with increasing P/T and overall antimicrobial use during the same time period. While a porin mutation has been described in similar strains, we have not been able to demonstrate this mechanism of resistance to date. Clinicians should be aware of this emerging resistance pattern when prescribing empiric antimicrobials.

Figure 1.

Figure 1.



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

2408. Delayed Appropriate Antimicrobial Therapy Does Not Affect the Clinical Outcome of Patients With Acute Pyelonephritis by Extended-Spectrum β-Lactamase-Producing *Enterobacteriaceae*

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Background. Extended spectrum β-lactamase-producing *Enterobacteriaceae* (ESBL-PE) is related to inappropriate empirical therapy for acute pyelonephritis. The aim of this study was to investigate whether the delay in appropriate antimicrobial therapy of APN caused by ESBL-PE was associated with patient`s poor outcome or not.

Methods. A retrospective cohort study was performed at a tertiary-care hospital from January 2014 through December 2016. Patients who had APN caused by ESBL-PEs and were treated with appropriate definite antibiotics for at least 7 days were enrolled. The delay in appropriates antimicrobial therapy was defined as patients who had received appropriate antibiotics 48 hour or later after diagnosis of APN. Primary endpoint was treatment failure defined as clinical and/or microbiological failure. Secondary endpoint was length of hospital stay and recurrence of febrile urinary tract infection by ESBL-EP within 1-year. The propensity score matching and multivariable Cox proportional hazard modeling were used to adjust heterogeneity of each group.

Results. A total of 175 eligible cases were collected. *Escherichia coli* (144/175, 82.3%) was the most common pathogen, followed by *Klebsiella pneumonia* (29/175,