for ACM or CR; this was not unexpected, since the trial showed non-inferiority of the two HABP/VABP therapies. No interactions between the significant predictors and treatment arm were observed.

Conclusion. This analysis validated known predictors for mortality and clinical outcomes in pts with HABP/VABP and supports the main study results by showing no interactions between predictors and treatment arm.

Table 1. Candidate baseline variables pre-selected for inclusion

Treatment arm: IMI/REL vs. PIP/TAZ	Concurrent bacteremia with any pathogen: Yes vs. no
Patient age: <65 vs. ≥65 years old	Number of LRT pathogens: Monomicrobial vs. polymicrobial vs. none
Patient sex: Female vs. male	Renal impairment: None[a] vs. mild[b] vs. moderate/severe[c]
Patient race: White vs. non-White vs. missing	Renal function: Augmented renal clearance[d] vs. normal[e] vs. impaired[f]
Region patient was enrolled in: Americas vs. Asia-Pacific vs. Europe	Treatment duration: ≥7 vs. <7 days
Type of pneumonia: Nonventilated HABP vs. ventilated HABP/VABP	*K. pneumoniae*: Present vs. not detected
APACHE-II score: <15 vs. ≥15	*P. aeruginosa*: Present vs. not detected
CPIS: ≤5 vs. ≥6	*E. coli*: Present vs. not detected
Hospital service unit: Neurology vs. other	*A. calcoaceticus-baumannii* complex: Present vs. not detected
In ICU: Yes vs. no	

[a]Creatinine clearance ≥90 mL/min. [b]Creatinine clearance ≥60 to <90 mL/min. [c]Creatinine clearance ≥15 to <60 mL/min. [d]Creatinine clearance ≥150 mL/min. [e]Creatinine clearance ≥90 to <150 mL/min. [f]Creatinine clearance ≥15 to <90 mL/min.

Figure 1. Independent predictors of greater Day 28 all-cause mortality (MITT population; N=531)

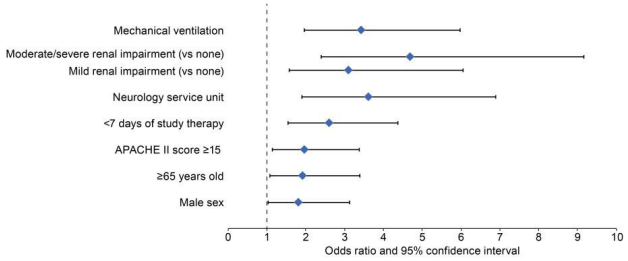
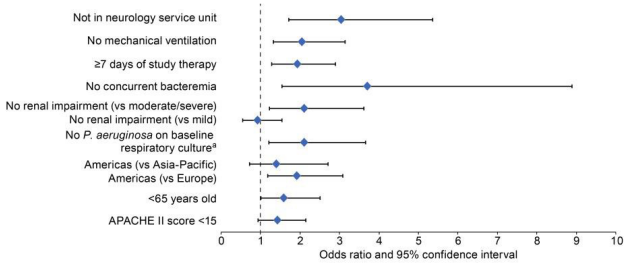


Figure 2. Independent predictors of favorable clinical response at EFU (MITT population; N=531)



[a]A total of 98 pts had no lower respiratory tract culture results.

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1575. Predictors of Negative Clinical Outcomes among Patients treated with Meropenem-Vaborbactam for Serious Gram-Negative Bacterial Infections: Impact of Delayed Appropriate Antibiotic Selection

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Session: P-71. Treatment of Antimicrobial Resistant Infections

Background. Numerous number of studies have found a positive correlation between delayed appropriate antibiotic therapy and negative clinical outcomes (NCO) in Gram-negative bacterial infections (GNBI). The combination of meropenem with vaborbactam (MVB) received Food and Drug Administration approval for the treatment of complicated urinary tract infections and acute pyelonephritis caused by susceptible organisms in August 2017. We sought to determine the impact of delayed appropriate therapy with MVB on NCO among patients with GNBI.

Methods. Multi-center, retrospective cohort study from October 2017 to March 2020. We included adult patients treated with MVB for >72 hours. We excluded patients who received alternative appropriate antibiotics for GNB prior to MVB and patients with unknown dates for index culture. NCO were defined as 30-day mortality and/or microbiological recurrence. All outcomes were measured from MVB start date. Classification and regression tree analysis (CART) was used to identify the time breakpoint (BP) that delineates the risk of NCO. Multivariable logistic regression analysis (MLR) was used to examine the independent association between the CART-derived-BP and NCO. Variables were retained in the model if P< 0.2 and removed in a backward stepwise approach.

Results. A total of 86 patients were included from 13 institutions in the United States: median(IQR) age 55 (37-67) years, 67% male, and 48% Caucasian. Median(IQR) APACHE II and Charlson Comorbidity index scores were 18(11-26) and 4(2-6), respectively. Common sources of infection were respiratory (37%) and intra-abdominal (21%). The most common pathogens were *carbapenem-resistant Enterobacterales* (83%). CART-derived BP between early and delayed treatment was 48 hours, where NCO was increased (36% vs.7%; P=0.04). Delayed MVB initiation was independently associated with NCO in the MLR (aOR=7.4, P=0.02).

Results of Regression Analysis of Variables Associated With Negative Clinical Outcomes and Delayed Appropriate Therapy with Meropenem-vaborbactam

Variable	Odds ratio, 95% confidence interval (CI)	Adjusted Odds Ratio
Respiratory infection source	7.6, [0.94 – 61.1]	11.2, [2.4 – 52.1]
Intensive care at index culture	11.2, [1.7-82.2]	14.4, [3.2 – 65.0]
Delayed MVB initiation (> 48 hours)	15.6, [1.5 – 165.6]	7.4, [1.4 – 40.3]

Conclusion: Our results suggest that delaying appropriate antibiotic therapy with MVB for >48 hours significantly increases the risk of NCO in patients with GNBI. Clinicians must ensure timely administration of MVB to assure best outcomes in patients with GNBI.

Disclosures. **Kevin W. Garey, PharMD, MS, FASHP**, **Merck & Co.** (Grant/Research Support, Scientific Research Study Investigator) **Michael J. Rybak, PharmD, MPH, PhD**, **Paratek** (Grant/Research Support)

1576. Re-Evaluation of cefepime or piperacillin-tazobactam to Decrease Use of Carbapenems in ESBL-Producing *Enterobacterales* BloodStream Infections (REDUCE-BSI)

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Session: P-71. Treatment of Antimicrobial Resistant Infections

Background. The ideal therapy for treatment of bloodstream infections (BSI) due to ESBL-producing organisms is widely debated. Although prior studies have demonstrated efficacy of non-carbapenems (CBPNs) for ESBL infections, results from the MERINO study group found increased mortality associated with piperacillin/tazobactam (PT) when compared with meropenem for treatment of ESBL BSI. The goal of this study was to investigate patient outcomes associated with the use of CBPN-sparing therapies (PT and cefepime (CEF)) for ESBL BSI. The primary outcome was in-hospital mortality between non-CBPN (PT and CEF) and CBPN groups. Secondary outcomes included clinical cure, microbiologic cure, infection recurrence, and development of resistance.

Methods. This was a retrospective observational study of patients admitted to the hospital from May 2016 - May 2019 with a positive blood culture for an ESBL-producing organism. Patients receiving meropenem, ertapenem, PT, or CEF were

included. Patients were excluded if < 18 years old, receiving antibiotics for < 24 hours, treated for a polymicrobial BSI, or receiving concomitant antibiotic therapy for another gram-negative (non-ESBL) infection.

Results. One hundred and fourteen patients were analyzed; 74 (65%) patients received CBPN therapy compared with 40 (35%) patients that received a non-CBPN (CEF N=30, PT N=10). There were no statistically significant differences in baseline characteristics between groups. The overall in-hospital mortality rate was 6% (N=7). Eight percent of patients (N=6) in the CBPN arm died compared to 3% (N=1) of patients in the non-CBPN arm, P = 0.42. No difference in mortality was detected between groups when evaluating subgroups with Pitt bacteremia score ≥4 (N=25), requiring ICU admission (N=50), non-genitourinary source (N=50), or by causative organism (N=76 *E. coli*; N=38 *Klebsiella* spp.). There was no difference between groups for secondary outcomes.

Conclusion. CEF and PT are reasonable options for the treatment of ESBL BSI and did not result in increased mortality or decreased clinical efficacy when compared to CBPNs in this cohort.

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

1577. Real-World, Multicenter Experience with Eravacycline for Various Infections

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Session: P-71. Treatment of Antimicrobial Resistant Infections

Background. Eravacycline (ERV) is Food and Drug Administration approved in patients for the treatment of adults complicated intra-abdominal infections in 2018. Real-world data regarding the indications for ERV use are is limited. We evaluated the clinical/safety outcomes of patients treated with ERV in FDA and non-FDA approved indications.

Methods. Multicenter, retrospective, observational study from September 2018 to June 2020. Adult patients treated with ERV for ³ 72 hours were included. The primary outcome was 30-day survival. Secondary outcomes included a lack of 30-day infection-recurrence, resolution of signs/symptoms of infection and safety. All outcomes were measured from ERV start date.

Results. Overall, 108 patients were included from 12 geographically-distinct medical centers across the United States. The median(IQR) age was 60(52-67) years and 60% were male. Median(IQR) APACHE II and Charlson Comorbidity scores were 15(11-21) and 3 (2-6), respectively. The most common sources of infection were intra-abdominal (32%), and respiratory (24%). Common pathogens included *Acinetobacter baumannii* (19%), *Klebsiella pneumoniae* and *Enterococcus faecium* (16%). Infectious diseases consultation was obtained in 98%, and surgical interventions in 51% of cases. Patients often received active therapy prior to ERV(40%). Median(IQR) ERV therapy duration was 7.7(4.4-14.0) days. Among cases with documented cultures, ERV was initiated within a median(IQR) of 4.8(2.5-9.9) days. Combination therapy ³ 48 hours was given in 45%. The primary endpoint was achieved in 79%(85/108). Of patients who died(n=23), 57% were on monotherapy, 39% were critically ill, 39% had intra-abdominal as a source, and 30% had positive blood cultures. For secondary outcomes, 94%(102/108) lacked 30-day infection-recurrence and 74%(80/108) resolved signs/symptoms of infection. ERV was selected primarily for consolidation of the regimen(40%). Eight patients experienced a probable ERV-related adverse event, mainly gastrointestinal(87.5%) and none experienced *clostridium difficile*.

Conclusion. 30-day survival was achieved in the majority of patients treated with ERV. Studies with longer follow-up are required to confirm these findings.

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1578. Treatments for complicated urinary tract infections (cUTI) caused by multidrug resistant (MDR) Gram-negative (GN) pathogens- a systematic review and network meta-analysis (NMA)

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Session: P-71. Treatment of Antimicrobial Resistant Infections

Background. Antimicrobial resistance is a major and growing threat to global public health. Cefiderocol (CFDC) is a new siderophore-cephalosporin with a wide activity spectrum covering all aerobic GN pathogens including all WHO critical priority pathogens, that was recently approved by FDA for the treatment of GN cUTI in susceptible organisms. We aim to understand the relative efficacy and safety of current treatment options for cUTI caused by MDR GN pathogens.

Methods. We conducted a systematic review to identify all relevant trials that investigated the efficacy and safety of antimicrobial regimens, for the treatment of GN pathogens in cUTI. Outcomes of interest included clinical cure and microbiological eradication (ME) at time of cure (TOC) and sustained follow up (SFU), and safety. Evidence networks were constructed using data for outcomes of interest and analyses were conducted in a frequentist framework using NMA methods outlined by the NICE decision support unit using the netmeta package in R.

Results. A total of 5 studies, 6 interventions and 2,349 randomised patients were included in the final analysis. Interventions included CFDC, imipenem-cilastatin (IPM-CIL), ceftazidime-avibactam (CAZ/AVI), doripenem (DOR), levofloxacin and ceftolozane-tazobactam (CEF/TAZ). Trials included predominantly Enterobacterales, and *Pseudomonas aeruginosa* and very few *Acinetobacter baumannii*. The patient population presented some clinical differences across trials, which were not adjusted for the NMA. Overall, there were numerical differences (especially in endpoints at SFU favouring CFDC), but all treatments showed similar efficacy and safety, with exception of higher ME rate at TOC for CFDC vs IPM, Table 1, also observed at SFU, consistent with the data from the individual clinical trial.

Table 1- Results for microbiological eradication

Table 1- Results for microbiological eradication

Comparator	Microbiological eradication at TOC OR (95% CI)* *>1 favours cefiderocol	Microbiological eradication at SFU OR (95% CI)* *>1 favours cefiderocol
ceftolozane-tazobactam	0.83 (0.24 to 2.86)	1.52 (0.61 to 3.80)
ceftazidime-avibactam	1.75 (0.67 to 4.58)	1.52 (0.61 to 3.80)
doripenem	2.44 (0.89 to 6.73)	2.09 (0.80 to 5.47)
imipenem-cilastatin	2.10 (1.33 to 3.32)	1.72 (1.11 to 2.67)
levofloxacin	1.94 (0.61 to 6.17)	-
cefiderocol	Reference	

Conclusion. This NMA, showed superiority of CFDC vs IPM-CIL in ME at TOC and SFU and similar efficacy and safety vs all other comparators, with numeric differences favouring CFDC for outcomes at SFU. These traditional methodologies for NMA, are only valid within a similar pathogens pool and population across the trials, and may not reflect the full value of breadth of coverage that new therapeutic options bring for the treatment of MDR GN pathogens.

Disclosures. Tim Reason, PhD, Shionogi (Consultant) Karan Gill, MSc, Shionogi BV (Employee) Christopher Longshaw, PhD, Shionogi B.V. (Employee) Rachael McCool, PhD, York Health Economics Consortium (Employee, YHEC was commissioned by Shionogi to conduct the systematic review) Katy Wilson, PhD, York Health Economics Consortium (Employee, Shionogi commissioned YHEC to conduct the systematic review) Sara Lopes, PharmD, Shionogi BV (Employee)

1579. *Burkholderia* Returns: Are Two Drugs Better or Back to Bactrim?

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Session: P-71. Treatment of Antimicrobial Resistant Infections

Background. Trimethoprim-sulfamethoxazole (T/S) and levofloxacin are considered first line agents for the treatment of *Burkholderia cepacia complex* (Bcc). Combination therapy (CT) is frequently utilized despite limited clinical evidence supporting this. The objective of this study is to compare outcomes associated with different regimens for the treatment of Bcc infections.

Methods. This is a retrospective cohort study in non-cystic fibrosis adult patients with infection caused by Bcc from 2015 to 2019. The primary outcome is the composite of overall treatment failure defined as clinical failure, microbiologic failure, or mortality at 30 days. Secondary outcomes include mortality, clinical failure, microbiological failure, development of resistance, recurrence, and safety. Comparisons were performed using Chi-squared or Fischer's exact test for categorical variables and Student's t test or the Mann-Whitney U test for continuous variables, as appropriate. Multivariable logistic regression analysis was used to identify independent risk factors for overall treatment failure.

Results. Sixty-eight patients were included, 50 (74%) received monotherapy (MT) and 18 (26%) received CT. MT regimens included meropenem (n=19), ceftazidime (n=15), T/S (n=10), and other (n=6). Various combination regimens were utilized. MT recipients were significantly older, more likely to have renal disease, less likely to have an immunosuppression, and had a higher severity of illness. The most common site of infection was respiratory (78%). No difference was found for overall treatment failure between MT and CT (36.0% vs. 38.9%; p=0.947). No differences were found in the