Background Statistics		
	Count	%
Males	20	
Females	17	
Avg Age	47.1	
Avg BMI	22.5539394	
Avg BMI Post-Rx	22.4904545	
CF	15	40.5
CF Modulator	9	60.0
Structural Lung Disease (Non-CF)	16	43.2
Any Form Lung Disease (CF = Structural)	25	67.6
Autoimmune Disease	3	8.1
Immunosuppressed	10	27.0
DM	7	36.8
Treated NTM in Past	28	
Avg # of Trials Before Clofazimine	1.31	

Table 1: basic patient characteristics

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

2261. Oral Fosfomycin for Treatment of Urinary Tract Infections Due to Extended-Spectrum β-Lactamase and Carbapenem-Resistant Enterobacteriaceae

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Session: 246. Clincal Outcomes of Infections with Resistant Organisms
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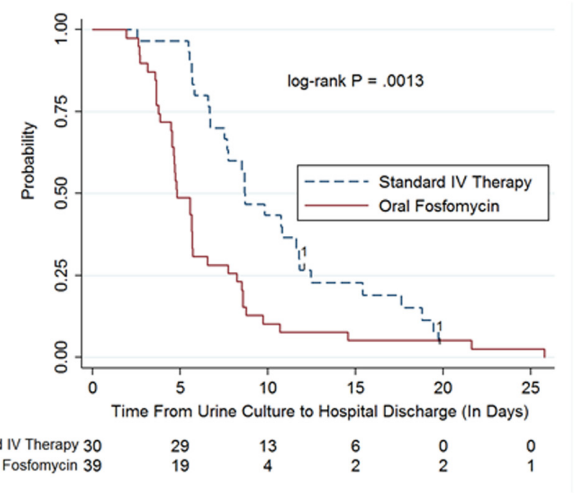
Background. Urinary tract infections (UTIs) caused by extended spectrum β-lactamase (ESBL) and carbapenem-resistant Enterobacteriaceae (CRE) pose a significant challenge due to limited treatment options. The objective of this study was to compare outcomes in patients treated with standard IV therapy or oral fosfomycin for ESBL and CRE UTIs.

Methods. Retrospective cohort review of inpatients diagnosed with ESBL and CRE UTIs between June 2016 and September 2017 at a seven-hospital system. Patients with polymicrobial UTI, bloodstream infections, additional anatomical site with ESBL/CRE, or those requiring renal replacement therapy were excluded. Only patients with documented fosfomycin susceptible isolates *in vitro* were included. Eligible patients were divided into two groups: standard IV therapy (SDTx) or fosfomycin therapy (FOS). FOS group could receive ≤72 hours of other active antibiotics from urine culture collection (UTI onset) to the first dose of fosfomycin. Quick sequential organ failure assessment (qSOFA) scores were calculated at UTI onset. The primary endpoint was functional cure defined as resolution of symptoms without microbiological failure. Microbiological failure was defined as a positive urine culture within the index hospitalization or 30 days.

Results. There were 70 patients included: 31 treated with SDTx and 39 with FOS. ESBL *Echerichia coli* was most common, accounting for 58% of UTIs in SDTx and 71.8% in FOS. ESBLs accounted for 71% (n = 22/31) of UTIs in SDTx and 89.7% (n = 35/39) in FOS. The overall qSOFA score was 0.7 (range, 0–3) with the majority of patients scoring < 2 (80.6% in SDTx vs. 92.3% in FOS; P = 0.29). There was no significant difference in functional cure rate (n = 30, 96.8% SDTx vs. n = 37, 94.9% FOS; P = 0.83). SDTx patients had a longer length of stay (15.3 days vs. 7.3 days with FOS; P = 0.04), duration of active therapy (7.6 days vs. 3 days with FOS; P < 0.0001), and time from UTI onset to discharge (10.3 days vs. 6.6 days with FOS; P = 0.002). There were no adverse drug events reported.

Conclusion. Oral fosfomycin was a safe and effective alternative to standard IV therapy for ESBL and CRE UTIs in this investigation and demonstrated similar functional cure rates. Additionally, patients treated with fosfomycin had shorter hospitalizations and durations of antibiotic therapy.

Clinical Outcomes	Oral Fosfomycin (n=39)	Standard IV Therapy (n=31)	p-value
Primary Endpoint			
Functional cure, n (%)	37 (94.9)	30 (96.8)	0.59
Secondary Endpoints			
Microbiologic failure, n (%)	2 (5.1)	1 (3.2)	0.12
Hospital length of stay; mean days ± SD	7.3 ± 6.7	15.3 ± 20.9	0.04
Active antibiotic duration; mean days ± SD	3 ± 2	7.6 ± 3.6	<0.0001
UTI onset to discharge; mean days ± SD	6.6 ± 4.8	10.3 ± 4.8	0.002
Acute kidney injury, n (%)	4 (10.3)	3 (9.7)	0.94
30-day recurrence, n (%)	5 (12.8)	1 (3.2)	0.15
30-day readmission, n (%)	6 (15.4)	10 (32.3)	0.10
In-hospital mortality, n (%)	0 (0)	2 (6.5)	0.11



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

2262. Ceftazidime–Avibactam vs. Polymyxin B in the Treatment of Infections Due to Carbapenem-Resistant Enterobacteriaceae

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Background. Pharmacotherapy for carbapenem-resistant Enterobacteriaceae (CRE) infections is limited. There is a paucity of evidence to guide optimal management of CRE infections. Ceftazidime–avibactam, a novel cephalosporin/β-lactamase inhibitor, may be a reasonable alternative to colistin for CRE infections, but data on polymyxin B (PB) are lacking. Given the improved pharmacokinetic profile of PB compared with colistin, we sought to evaluate clinical and microbiological outcomes of patients treated with CAZ-AVI vs. PB for CRE infections.

Methods. We conducted retrospective cohort study in adult patients treated with CAZ-AVI or PB for a CRE infection between June 2010 and August 2018. The primary outcome was all-cause mortality at 30 days. Secondary outcomes included clinical cure, microbiological cure, and development of resistance. Endpoints were analyzed using standard statistical measures. The influence of clinical variables other than antimicrobial therapy was assessed in a multivariable regression analysis.

Results. The study included 117 patients, with 42 patients receiving CAZ-AVI and 75 receiving PB. Respiratory and urinary tract infections were most common, occurring in 37.6% and 20.5% of patients, respectively. Bloodstream infections occurred in 45 (35.9%) patients. In the CAZ-AVI group, there were 9 deaths (21.4%), compared with 19 deaths (25.3%) in the PB group (P = 0.653). No statistically significant differences were found in clinical cure or microbiologic cure between CAZ-AVI and PB. PB was associated with a higher incidence of nephrotoxicity (19% vs. 43%; P = 0.048). After adjustment for duration of therapy, combination therapy, and initial WBC, use of PB was not an independent predictor of mortality.

Conclusion. No statistically significant differences between CAZ-AVI and PB were found in clinical or microbiologic outcomes in this cohort of patients treated for CRE infection. Further studies are necessary to confirm these preliminary findings to optimize clinical practice.

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

2263. Fosfomycin Trometerol Use for Complicated UTIs Including Pyelonephritis, a 1-year Review of Outcomes and Prescribing Habits

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Background. Treatment of complicated urinary tract infections (UTI) caused by multidrug-resistant organisms (MDROs) is increasingly problematic given limited oral antibiotic options. In these situations, fosfomycin is increasingly used. However, there are limited outcome and pharmacokinetic data to support fosfomycin use for complicated UTIs (cUTI), especially in the upper tract. We describe fosfomycin use for complicated cUTI in our healthcare system.

Methods. We performed a retrospective review of all fosfomycin prescriptions between 1/1-December 31/17 in the Los Angeles Department of Health Service system, which consists of 4 medical centers and 19 clinics that provide care to >600,000 patients annually. In our system, fosfomycin use requires ID approval. We collected demographics, clinical characteristics, adverse effects, and 30-day success

rates. Subsequent urine cultures up to December 31/18 were examined for fosfomycin susceptibility.

Results. A total of 156 patients received fosfomycin; 21 (13%) had lower UTI, 39 (25%) had lower tract cUTI, 24 (15%) had upper tract not pyelonephritis, and 37 (24%) had pyelonephritis. The majority (n = 98, 63%) were female, 82 (53%) had urological or functional abnormalities, 67 (43%) had diabetes, 26 (17%) were immunocompromised and most (n = 135, 87%) presented from the community. *E.coli* was the predominant pathogen (n = 123, 79%), 112 (91%) of these produced ESBL. For cUTI (n = 100), dosing interval was q24h (3%), q48h (51%) and q72h (46%). Among patients with 30-day outcomes (n = 100, 64%), success was seen in 84 (84%), and was 79% (14/64) among those with cUTI. Failure was associated with male gender (p = 0.005), urological abnormalities (p = 0.047), and non-*E. coli* UTIs (p = 0.03). Only 1 adverse effect at 30 days was described. Fosfomycin-resistant *E. coli* were found in 9/64 (14%) of patients with follow-up urine cultures > 30 days after initial treatment (mean 5.7 ± 4.03 mo.).

Conclusion. Despite the lack of data supporting its use, we found that most patients receiving fosfomycin for complicated upper UTIs had clinical success. However, emergence of subsequent resistance warrants caution. Further studies should be done to better understand optimal use of fosfomycin for complicated UTIs.

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

2264. An Evaluation of Empiric Treatment Patterns for Adult Patients with Community-Onset (CO) "Low-Risk" (LR) Complicated Intra-Abdominal Infections (cIAI) Across US Hospitals

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Background. Current cIAI guidelines recommend that broad-spectrum antibiotics (abs) like anti-pseudomonal β-lactams should be reserved for "high-risk" CO cIAI patients. Fluoroquinolone (FQ) use is also discouraged in geographic areas with a high incidence of FQ-resistance. Compliance with these recommendations are unclear as there are limited data on empiric treatment (tx) patterns for adult patients with cIAI across US hospitals. This study sought to evaluate empiric tx patterns for patients with CO LR cIAI and assess compliance with cIAI guideline recommendations.

Methods. A retrospective multi-center study using data from the Premier Research Database (October 2015–December 2017) was performed. Inclusion criteria: age ≥ 18 years; hospitalized; primary cIAI diagnosis and a cIAI surgical procedure or a secondary cIAI diagnosis and cIAI surgical procedure within 5 days of admission; and received an ab within first 4 hospital days. For patients with multiple cIAI admissions, only the first cIAI was considered. Apt was classified as high-risk (HR) if they met any one of the following criteria: sepsis, severe sepsis, septic shock; ≥3 components of sepsis; or ≥2 two physiologic risk factors (age ≥ 70 years, malignancy, kidney dysfunction, hepatic dysfunction, hypoalbuminemia, and significant cardiovascular compromise). Empiric tx was abs received during the first 4 hospital days. Incidence of empiric tx regimen including one of the following abs was determined among LR patients: piperacillin/tazobactam (TZP), meropenem (MER), cefepime (CFP), and FQ.

Results. Overall, 70,275 patients met study criteria; 11,382 (16%) were HR and 58,893 (84%) were LR. Among LR CO cIAI patients, the mean (SD) age was 54.3 (18.1), 52% were male, and the median (IQR) for Charlson Comorbidity Index was 0 (0–1). The most common diagnosis among LR patients was acute appendicitis with peritonitis (53%). The 10 most common empiric antibiotics administered are shown in table. Among LR patients, 52% received TZP, 3% received MER, 3% received CFP, and 20% received a FQ; 8% received ≥2 of these agents.

Conclusion. Overuse of non-guideline concordant broad-spectrum abs was commonplace among CO cIAI patients classified as LR. These findings can serve as the basis for an antimicrobial stewardship initiative in hospitals aspiring to reduce the use of broad-spectrum antibiotics.

Percent of Low Risk Patients Receiving Antibiotic Days 1-4	
PIPERACILLIN/TAZOBACTAM	52.5
METRONIDAZOLE	37.8
CEFAZOLIN	16.5
CEFOXITIN	13.9
ERTAPENEM	12.8
CIPROFLOXACIN	11.5
CEFTRIAXONE	10.5
LEVOFLOXACIN	9.2
VANCOMYCIN	9.1
AMPICILLIN/SULBACTAM	7.2

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

2265. Clinical Outcomes with Single vs. Combination Antibiotic Therapy in the Treatment of *Burkholderia cepacia complex* Bacteremia and Pneumonia

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Background. *Burkholderia cepacia complex* (*Burkholderia cenocepacia* and *Burkholderia multivorans*) (*BCC)* are uncommon, yet serious often drug-resistant pathogens of immunocompromised patients, especially in lung transplants; pre-operative infection/colonization is seen as a contraindication to transplant. Optimal treatment for these difficult infections is not known. We examined impact of single vs. combination therapy on patient outcomes.

Methods. All cases of *BCC* positive pulmonary or blood cultures at The Ohio State University Wexner Medical Center between January 1, 2012 and June 30, 2018 were analyzed. No cystic fibrosis patients were included. All combinations thereof were evaluated. The primary outcomes were 30 all-cause mortality and 30-day infection-related mortality. Secondary outcomes included sterilization of cultures, isolation of a non-susceptible isolate within 30 days of therapy, hospital and intensive care unit (ICU) length of stay, and adverse drug effects (ADE) of therapy including: hyperkalemia, acute kidney injury (AKI), transaminitis, and QTc prolongation.

Results. There were 90 unique patients who grew *BCC* (22 patients with 92 positive blood cultures; 54 patients with 87 positive pulmonary cultures). Four patients had mixed pulmonary and blood cultures. Ten patients died prior to having treatment for their cultures and were not evaluated. Overall, there were 85 evaluable infection events. Overall 30-day all-cause mortality was 20/85 (23.5%); mortality in blood culture monotherapy 3/14 (21.4%); combination therapy 3/18 (16.7%) (P = 1.00). Mortality in pulmonary culture monotherapy was 6/32 (18.75%); combination 10/30 (33.3%) (P = 0.19). Among blood cultures monotherapy was associated with 8 ADE while combination therapy was 11 (P = 0.82). In pulmonary patients, monotherapy had 16 ADE while combination had 23 (P = 0.03).

Conclusion. Overall mortality trends improved with combination therapy in blood culture patients and with monotherapy patients in pulmonary cultures. These findings are influenced by the limited number of patients available, and the medical co-morbidities of these patients. In lung patients there were significantly fewer ADE associated with monotherapy as opposed to combination therapy.

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

2266. Management of Ertapenem-Resistant, Meropenem-Susceptible Enterobacteriaceae

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Background. Carbapenemases are the most frequent mechanism of carbapenem resistance in Enterobacteriaceae. However, alternative mechanisms such as loss of porin channels or up-regulation of efflux pumps can cause intermediate- to high-level resistance to ertapenem (ERTA) and possibly reduced susceptibilities to meropenem (MERO) leading to discordant phenotypic profiles. Clinical implications of discordant carbapenem susceptibilities and optimal therapy options are yet unknown. We sought to describe our experience with carbapenem-discordant Enterobacteriaceae (CDE).

Methods. Descriptive study of hospitalized adult patients with a CDE positive culture from December 1/16 - December 1/18. Discordance was defined as Enterobacteriaceae with an ERTA-resistant and MERO-susceptible phenotype. Primary objective was to describe antibiotic use patterns for CDE infections. Secondary outcomes included infectious diseases (ID) involvement and clinical outcomes. Clinical failure was defined as a composite of in-hospital mortality, switch of definitive therapy due to clinical worsening, re-hospitalization within 30 days for re-infection, or failure to achieve blood culture clearance for ≥7 days.

Results. A total of 55 patients with CDE were identified. Most common organisms were *Enterobacter cloacae* complex (72%) and *Klebsiella pneumoniae* (9%). Of 21 isolates tested, 1 (4.8%) was positive for a carbapenemase. Mean age of patients was 61 ± 16 years, 51% were admitted to a medicine service, and 18% were immunocompromised. ID was involved in 82% of CDE cases. Most common sites were urine (33%), wound/tissue (27%), and respiratory (18%). 43/55 (78%) patients were treated – 17/43 (40%) with MERO, 14/43 (33%) with fluoroquinolones. Ceftazidime/avibactam and tigecycline were used in 4 (9%) patients each. Combination therapy was used in 8 (19%) patients, most commonly with MERO or tigecycline. Clinical failure occurred in 21/43 (49%) patients – 8/43 (19%) were receiving MERO-based therapy, 13/43 (30%) were receiving a non-MERO-based therapy.

Conclusion. Discordance between ERTA and MERO susceptibility was more common in *Enterobacter* spp. Majority of isolates tested negative for a carbapenemase. MERO and fluoroquinolones were the most frequently used antibiotics for treatment of CDE infections.

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