reference broth microdilution methods. Percentage of isolates inhibited at ≤16 mg/L (CLSI, cefepime high dose) and ≤1 mg/L (pharmacokinetic/pharmacodynamic [PK/PD] susceptible [S] breakpoint based on extended infusion and high dosage) were evaluated.

**Results.** FEP-TAZ (99.9% inhibited at ≤16 mg/L; Table), CAZ-AVI (99.9%), and meropenem (MEM; 99.5%) were the most active agents against Enterobacteriaceae (ENT). An ESBL phenotype (CLSI criteria) was observed in 12.5%, 12.9%, and 3.6% of *E. coli* (EC), *K. pneumoniae* (KPN), and *P. mirabilis* (PM), respectively. FEP-TAZ and CAZ-AVI exhibited complete activity against EC, whereas C-T and piperacillin-tazobactam (PIP-TAZ) were active against 91.5% and 88.1% of ESBL-phenotype EC isolates, respectively. The most active agents against KPN were FEP-TAZ (99.6% inhibited at ≤16 mg/L), CAZ-AVI (100.0%), and amikacin (AMK; 94.9%). All PM isolates were S to FEP-TAZ (highest MIC, 0.12 mg/L), C-T, CAZ-AVI, MEM, PIP-TAZ, and AMK. FEP-TAZ was highly active against *E. cloacae* (n = 94; MIC, 0.05 mg/L, 98.9% inhibited at ≤16 mg/L) and Citrobacter spp. (n = 91; MIC, 0.12 mg/L, highest MIC, 0.5 mg/L). Against *P. aeruginosa* (PSA), FEP-TAZ inhibited 97.6% of isolates at ≤16 mg/L, with spectrum of activity similar to CAZ-AVI (96.4%), C-T (94.4%) and AMK (97.6%), and greater than MEM (85.5%) and PIP-TAZ (87.3%).

**Conclusion.** FEP-TAZ showed potent activity against ENT and PSA isolated in US hospitals in 2018, with overall spectrum (ENT + PSA) similar to CAZ-AVI and greater than C-T, PIP-TAZ, and MEM when FEP-TAZ proposed PK/PD S breakpoint of ≤16 mg/L was applied. FEP-TAZ may represent a valuable option for treating cUTIs caused by resistant GNR.

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

### 1446. The Impact of Enterobacteriaceae Isolate Breakpoints on Prescriber Treatment Choices for Discordant Pattern Urinary Tract Infections

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**Session:** 157. Urinary Tract Infections

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**Background.** Our institution revealed Enterobacteriaceae with discordant ceftazidime (CEF) resistant / ampicillin-sulbactam (SAM) susceptible patterns (CRASS-P). This discordance could be from the multiple MIC cephalosporin breakpoint adjustments from CLSI. SAM has higher resistance for gram-negative bacteria compared with cephalosporins due to a reduced post-antibiotic effect (PAE) which is confirmed by our antibiotic MIC data. We sought to understand if narrow-spectrum antibiotic choices for CRASS-P urinary tract infections (UTIs) led to clinical cure (CC).

**Methods.** We conducted a retrospective review from January 2018 to February 2019 in our community hospital using CRASS-P urinary isolates from *P. aeruginosa*, *Klebsiella pneumoniae*, and *Escherichia coli*. We used the same breakpoints as CLSI for Enterobacteriales. “Group A” included patients prescribed narrow-spectrum antibiotics such as CEF, or an cephalosporin (OC) vs. broad-spectrum antibiotics such as ceftriaxone, quinolones or sulfa-medications (“Group B”).

**Results.** There were 960/1356 (70.4%) CRASS-P CRASS-P urinary isolates and 244 patients met inclusion criteria. Of 244 patients, 72 were in Group A and 172 were in Group B. There was no difference in the diversity of the 3 uropathogens, P = 0.34 (Table 1). Median age was 69±20.3 and 67.5±23.9 years for Group A and Group B, respectively, P = 0.12. Females accounted for 73.6% and 77.9% in Group A and B, respectively, P = 0.23. Females accounted for 73.6% and 77.9% in Group A and B, respectively, P = 0.23. Five patients (22.7%) were immunocompromised and 11 (50%) had diabetes.

**Conclusion.** The use of SAM or OC can spare the broad-spectrum antibiotics use for CRASS-P UTIs as there was no statistical difference in CC between the two groups. The use of SAM with CRASS-P bacteremia secondary to UTI is possible; however, future studies are needed.

**Table 1: Diversity of Enterobacteriaceae for patients meeting inclusion criteria**

| A. mirabilis | E. coli | P. mirabilis |
|--------------|---------|--------------|
| All (n = 244) | 193     | 43           | 7            |
| Group A (n = 72) | 56      | 14           | 2            |
| Group B (n = 172) | 137     | 29           | 5            |

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

### 1447. Ex Vivo Human Bladder Tissue Model to Evaluate Lactobacillus-Containing Formulations as Preventative Treatment Against Common Urogenital Pathogens

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**Session:** 157. Urinary Tract Infections

**Friday, October 4, 2019: 12:15 PM**

**Background.** Urinary tract infections (UTIs) are common bacterial infections in adults, and cathether-associated UTIs are the most common nosocomial infection. The rise of multidrug-resistant organisms and an increased focus on antibiotic stewardship has influenced the development of novel treatments against such infections, and there is growing interest in the use of probiotics for antimicrobial therapy. We used an ex vivo human bladder tissue (HTB) model to evaluate the antimicrobial efficacy and biocompatibility of lactobacillus-based developmental formulations (created and supplied by ECIET, Inc.) for preventative treatment against common UTI pathogens.

**Methods.** To assess antimicrobial efficacy, lactobacillus-containing formulations (live and attenuated) were spiked with five prevalent UTI organisms (5 × 10^9 CFU/mL). Ex vivo HTB explants were treated with 300 μL of spiked formulation for 6 and 24 h at 37°C, then processed and plated on selective agar. Biocompatibility studies assessed ex vivo HTB tissue viability and inflammatory response (IL-8) to lactobacillus-containing formulations with MIT assay and ELISA at 2 h post-treatment.

**Results.** At 6 h, live lactobacillus-containing formulations (29–124, 29–124C) were bacteriocidal (90.00–99.89% log CFU/mL reduction) against *Escherichia coli* and *Klebsiella pneumoniae* and bacterioidal (29–90% log CFU/mL reduction) against *Candida albicans*, *Enterococcus faecalis*, and *Proteus mirabilis*. By 24 h, live formulations were bactericidal against all five organisms tested. Attenuated formulation 29–125 achieved bacteriostatic efficacy against *E. coli*, *K. pneumoniae*, and *P. mirabilis* and bacteriocidal efficacy against *E. faecalis* at 24 h. Biocompatibility assessments following 2 h exposure to lactobacillus-based formulations revealed exposed explants were fully viable, with no significant changes in IL-8 production compared with PBS-treated controls.

**Conclusion.** This study suggests lactobacillus-based formulations are effective and safe options for UTI prevention. While this static ex vivo human bladder mucosal model does not fully replicate the dynamic and diluting conditions that occur in vivo, we anticipate that our findings will be confirmed by future in vivo studies.

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