

reported in the US, making the selection of empiric oral therapy increasingly unlikely to cover the offending uropathogen.

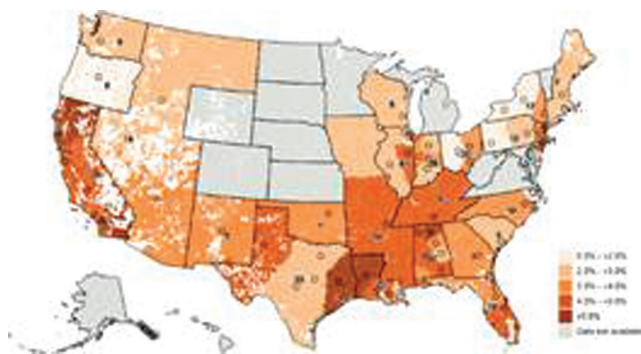
**Methods.** We queried the BD Insights Research Database (Franklin Lakes, NJ) to evaluate ambulatory antibiotic fill history for patients from 15 US institutions with an ambulatory urine culture positive for  $\geq 10^3$  CFU/mL of an ENT. Patients who filled a prescription for an oral antibiotic were further categorized into those with a urine culture positive for a susceptible or non-susceptible (NS) pathogen. ESBL positivity was presumed if the isolate was NS to extended spectrum cephalosporins. Outcome was assessed using two surrogate endpoints: hospital admission, or a follow-up oral antibiotic within 28 days of initial antibiotic fill. Urine 30 day nonduplicate ambulatory three drug resistance rates in Q2 2017 were determined by zip code for 379 facilities.

**Results.** 48/5,587 (0.9%) episodes of UTI with an outpatient urine culture had an Enterobacteriaceae that was resistant to quinolones, T/S, and NFH, and was ESBL-positive. Of those with at least three-drug class resistance, the hospital admission rate was 28%.

	28-Day Prescription Fill				28-Day Readmission			
	N (%)	Failures	Fail %	P-Value	N (%)	Failures	Fail %	P-Value
Overall	5,587	1250	22		5,395	379	7	
Pan-susceptible	1,771	287	16	0.0001	1,627	124	8	0.0001
	(32)				(30)			
3-4 Class Resistance <sup>a</sup>	197 (4)	55	28		184 (3)	51	28	

<sup>a</sup>All resistant to quinolones, T/S, and  $\beta$ -lactams; four class also includes resistance to NFH.

**Figure:** Geographic prevalence of three drug class resistance (quinolones,  $\beta$ -lactam, T/S) among Enterobacteriaceae causing UTI in the outpatient setting.



**Conclusion.** Multiclass resistance to existing oral antibiotics is prevalent throughout the United States in patients for whom an outpatient urine culture is available, with 1% of organisms resistant to all commonly available oral classes. Multidrug resistance in patients with an outpatient urine culture is associated with a significantly increased risk of treatment failure and subsequent hospitalization.

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### 1528. A Real-World Perspective on Treatment of CRE UTIs With Oral Agents

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**Session:** 150. Urinary Tract Infection

Friday, October 5, 2018: 12:30 PM

**Background.** Treatment approaches for carbapenem-resistant Enterobacteriaceae (CRE) urinary tract infections (UTIs) are typically limited to salvage agents with considerable toxicity or novel  $\beta$ -lactam/ $\beta$ -lactamase inhibitor combinations that are best used judiciously. Doxycycline (DOX) and fosfomycin (FOS) are orally available alternatives that demonstrate *in vitro* susceptibility against CRE; however, clinical data demonstrating their efficacy is limited.

**Methods.** We performed a retrospective review of patients with CRE UTIs who received  $\geq 1$  dose of FOS or  $\geq 5$  days of oral DOX. UTI was defined as a positive urine culture growing  $\geq 1,000$  CFU/mL of CRE among patients with dysuria, increased urinary frequency, suprapubic or flank pain or tenderness, fevers, or altered mental status without an alternative etiology. Cure was defined as resolution of symptoms within 7 days without recurrence within 30 days. Microbiological failure was defined as a positive urine culture within 14 days.

**Results.** Twenty-two patients were included, 14 and eight were treated with FOS and DOX, respectively. Median age was 59 (range: 24–86), 32% were male, 27% were transplant recipients, and the median Charlson score was 4 (0–9). Eighty-six percent of cases were healthcare associated and 73% met CDC criteria for UTI. UTIs were

complicated by pyelonephritis in three patients, but none had concomitant bacteremia. There were no differences in baseline characteristics, underlying diseases, or severity of illness among patients treated with FOS or DOX. 14% of FOS-treated patients received  $>1$  dose. The median duration of DOX treatment was 10 days (6–21). Cure occurred in 100 and 75% of patients treated with FOS and DOX, respectively ( $P = 0.36$ ; Figure 1). Patients treated with DOX had numerically higher rates of microbiological failure (38% vs. 21%;  $P = 0.62$ ) and statistically higher rates of clinical relapse (38% vs. 0%;  $P = 0.04$ ). Only one adverse event was recorded in a pt receiving FOS.

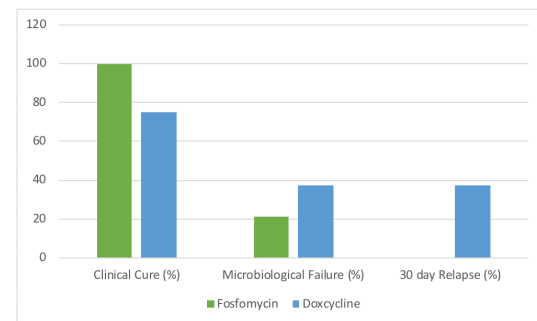
**Conclusion.** In our experience, FOS and DOX were effective in treating CRE UTIs; however, higher rates of microbiologic failures and clinical relapse occurred among patients receiving DOX. FOS should be considered the preferred option for CRE UTI among patients who are candidates for treatment with oral antibiotics. Comparisons between FOS and intravenous antibiotics for CRE UTI are warranted.

**Table 1: Outcomes of patients with CRE UTI treated with Fosfomycin and Doxycycline**

Outcomes n (%)	Fosfomycin n= 14 (percentage)	Doxycycline n= 8 (percentage)	p value
Clinical Cure	14 (100)	6 (75)	0.1212
Microbiological Failure	3 (21.4)	3 (37.5)	>0.6244
Persistent infection	3 (30)	2 (40)	>0.999
30 Day relapse	0 (0)	3 (37.5)	0.0364
Readmission due to CRE	0 (0)	1 (12.5)	0.3636
In hospital mortality/discharge to hospice	1 (7.1)	1 (12.5)	>0.999
Adverse reactions <sup>1</sup>	1 (7.1)	0 (0)	>0.999

<sup>1</sup> One patient had emesis with one dose of fosfomycin, tolerated repeat dose  
CRE= Carbapenem Resistant Enterobacteriaceae

**Figure 1: Outcomes of patients with Carbapenem Resistant Enterobacteriaceae UTI treated with Fosfomycin and Doxycycline**



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

### 1529. Suprapubic Catheter Placement Improves Antimicrobial Stewardship in a Veterans Affairs Long-term Care Facility

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**Session:** 150. Urinary Tract Infection

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**Background.** It is unknown if suprapubic catheters (SCs) offer benefit over indwelling urethral catheters (IUCs) in incidence of asymptomatic bacteriuria and catheter-associated infection (CAUTI), or subsequent antibiotic exposure.

**Methods.** We conducted a retrospective cohort study of unique patients with SCs placed at VA Pittsburgh Healthcare System from February 2015 to March 2018, who had a prior IUC ( $\geq 30$  days for each). Demographic, laboratory, microbiologic, and antibiotic use data were compared over the same number of days between IUC and SC periods. IDSA Guidelines were used to define CAUTI and asymptomatic bacteriuria.

**Results.** Eighteen patients with SC were included. SCs were in place for a median of 213 days (range: 49–1,085). The indications for catheterization were urinary retention ( $n = 12$ ), neurogenic bladder ( $n = 5$ ), and decubitus healing ( $n = 1$ ). The most common underlying conditions were benign prostatic hyperplasia ( $n = 9$ ), multiple sclerosis ( $n = 2$ ), and Parkinson's disease ( $n = 2$ ). The median number of urine cultures collected per 100 IUC and 100 SC days were 2.28 (range: 0–4.08) and 0.35 (range: 0–5.85), respectively ( $P = 0.02$ ). Forty-four percent (8/18) and 39% (7/18) received at least one antibiotic course for asymptomatic bacteriuria during IUC and SC periods. A total of 170 days of antibiotic therapy were given for asymptomatic bacteriuria per 4,881 IUC days vs. 107 days for asymptomatic bacteriuria per 4,881 SC days ( $P = 0.0001$ ). The median rate of CAUTI was 0.25 per 100 IUC days vs. 0.08 per 100 SC days ( $P = 0.15$ ). The most common pathogens causing CAUTIs were *Pseudomonas aeruginosa* ( $n = 5$ ), *Candida albicans* ( $n = 2$ ), *Klebsiella pneumoniae* ( $n = 1$ ) and *Enterococcus faecalis* ( $n = 1$ ). A total of 163 days of antibiotic therapy were given for CAUTI per 4,881 IUC days vs. 38 days of antibiotic therapy for CAUTI per 4,881 SC days ( $P < 0.0001$ ).

**Conclusion.** SCs were associated with significantly less overall antibiotic exposure than IUCs, both as treatment of CAUTIs and as inappropriate agents against asymptomatic bacteriuria. CAUTI rates were similar among patients with SCs and IUCs, although cultures were performed more often in those with IUCs. Reducing the treatment of asymptomatic bacteriuria remains a leading stewardship challenge.

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