

Evaluation of Optimal Treatment for Urinary Tract Infections in Outpatient Clinics at an Academic Medical Center

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Background

- Inappropriate prescribing of antibiotics is an important modifiable risk factor for antibiotic resistance¹
- Outpatient prescriptions consist of 60% of all antibiotic use in the United States, with approximately 30% being inappropriately prescribed¹⁻²
- Despite being poor empiric therapy for *Escherichia coli*, numerous FDA warnings, and removal from the 2010 IDSA acute uncomplicated cystitis and pyelonephritis guidelines, fluoroquinolones (FQ) are a common antibiotic class prescribed in the outpatient setting for urinary tract infections (UTI)³⁻⁴
- Starting January 1, 2020 there was a new Joint Commission requirement for outpatient Antimicrobial Stewardship⁵

Purpose

To assess the incidence of optimal empiric antibiotic therapy for urinary tract infections in outpatient clinics at VCU Health

Methods

Study Design: Retrospective single-center chart review from July 1, 2018 – June 30, 2019

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> 18 years of age or older Diagnosis of UTI per ICD 10 codes Receipt of antibiotic prescription for UTI treatment 	<ul style="list-style-type: none"> Concomitant infection Currently prescribed antibiotics for other indications Pregnant women

Primary Outcome

- Incidence of optimal treatment of UTIs in outpatient clinics at VCU Health

Secondary Outcomes

- Incidence of optimal empiric treatment by:
 - Provider type
 - UTI category
 - Beta-lactam allergy

Optimal treatment: Based on prior culture data and in accordance with health-system provided guidance

Results

Table 1. Baseline Characteristics

Characteristic	Internal Medicine (N=136)	Urology (N=90)	P-value
Age (yrs), mean ± SD	64.8 ± 14.6	60.5 ± 14.8	0.033
Female, no. (%)	120 (88)	34 (38)	<0.001
Race, no. (%)			0.073
Caucasian	81 (60)	40 (44)	
African American	51 (37)	45 (50)	
Other	4 (3)	5 (6)	
History of resistant pathogen, no. (%) [*]	8 (6)	20 (22)	1.000
ESBL	3 (38)	1 (5)	0.007
FQ-resistant GNR	1 (13)	7 (35)	0.158
CRE	0 (0)	2 (10)	0.398
MRSA	0 (0)	2 (10)	0.038
Other ^{**}	6 (75)	10 (50)	
Prior history of UTI within 24 months, no. (%)	77 (57)	65 (72)	0.016
Beta-lactam allergy, no. (%)	24 (18)	15 (17)	0.848
Prescriber, no. (%)			<0.001
Attending	82 (60)	27 (30)	
Nurse Practitioner	34 (25)	47 (52)	
Resident	20 (15)	0 (0)	
Physician's Assistant	0 (0)	16 (18)	
UTI category, no. (%)			<0.001
Complicated/pyelonephritis	51 (38)	80 (89)	
Uncomplicated	85 (62)	10 (11)	

^{*}5 total patients grew >1 resistant pathogen

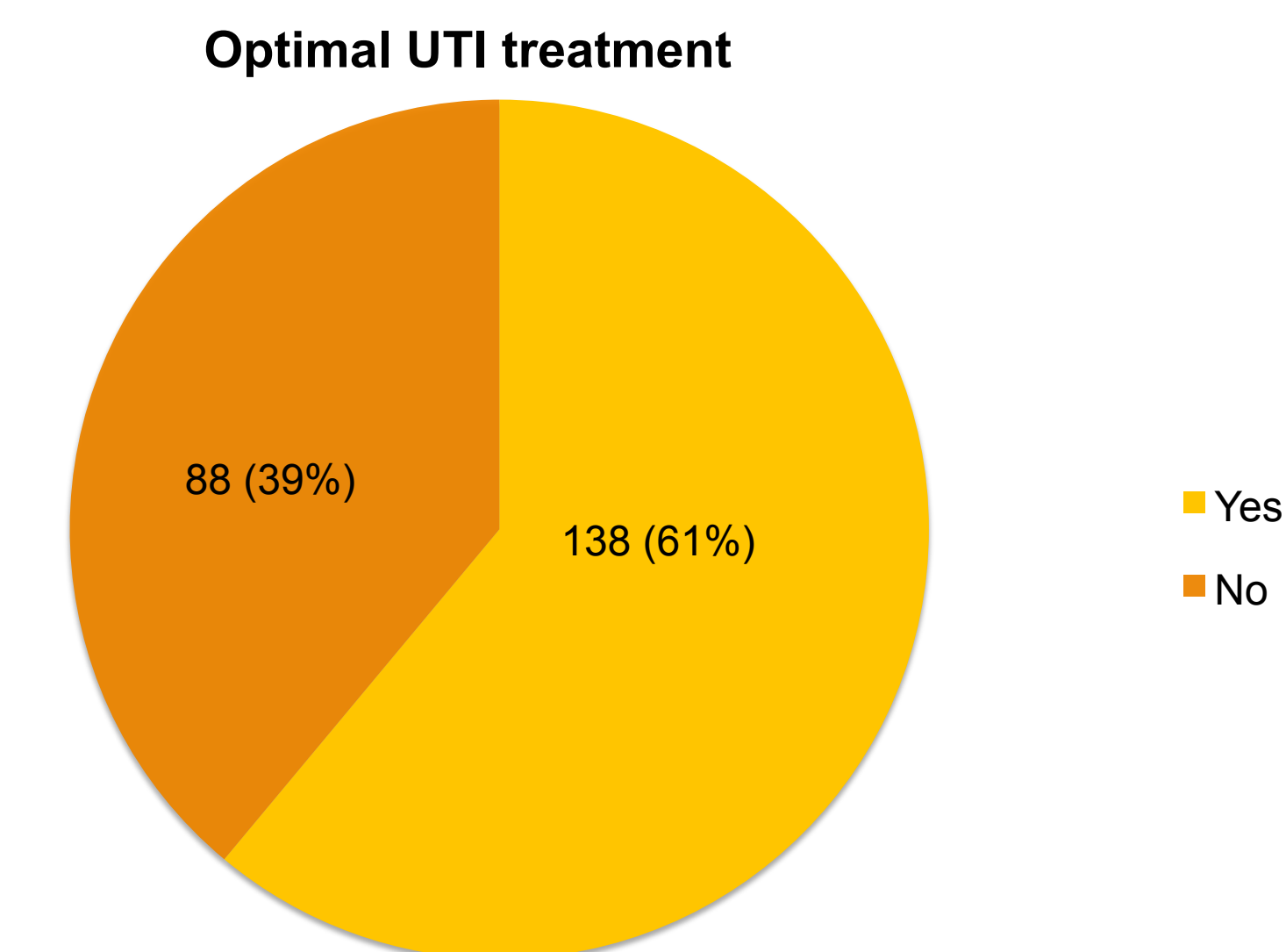
^{**}Other = resistant to ≥3 antibiotics

Table 2. Optimal UTI Treatment in Internal Medicine vs. Urology Clinics

Characteristic	Internal Medicine (N=94)	Urology (N=44)	P-value
Provider type, no. (%)			<0.001
Attending	47 (50)	13 (30)	
Resident	19 (20)	0 (0)	
Physician assistant	0 (0)	4 (9)	
Nurse practitioner	28 (30)	27 (61)	
UTI category, no. (%)			<0.001
Uncomplicated cystitis	62 (66)	5 (11)	
Complicated cystitis/pyelonephritis	32 (34)	39 (89)	
Beta-lactam allergy, no. (%)	17 (18)	11 (25)	0.353

Results Continued

Figure 1. Primary Endpoint



Internal medicine vs. Urology Clinics
94 (69%) vs. 44 (49%), P = 0.002

Conclusions

- Internal medicine clinics more frequently prescribed optimal empiric antibiotics for UTIs compared to urology clinics
- Presence of a beta-lactam allergy was not predictive of optimal prescribing
- These data highlight opportunities for antibiotic therapy optimization for UTIs at our institution

References

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