



Antibiotic Susceptibilities of Organisms Isolated From Urinary Cultures of Patients Diagnosed with a UTI Discharged From the ED

Patrizia Favale, Pharm.D., Nechama Rothberger, Pharm.D., BCPS, Samuel Simon, Pharm.D., AAHIVP, Rosanna Li, Pharm.D., Suri Mayer, B.S., Pharm.D.
Maimonides Medical Center (MMC), Brooklyn, NY

Background

- Urinary tract infections (UTIs) are among the most commonly treated infections in the Emergency Department (ED)¹
- Treatment is largely empiric and based on an institution-wide antibiogram comprised of isolates from all infection sites, which may overestimate antibiotic resistance of urinary pathogens of non-admitted ED patients
- The primary goal of this study was to determine the antibiotic susceptibilities of urinary pathogens isolated from adult patients with a UTI and discharged from the ED

Objective

- To determine the susceptibility rates of antibiotics to urinary pathogens isolated from adult patients with positive urine cultures discharged to home from the ED

Hypothesis

- In adult patients diagnosed with a UTI, susceptibility rates of pathogens to antibiotics are higher in patients discharged from the ED as compared to susceptibility rates reported by our institutional antibiogram

Methodology

Study Design:

- Single center, retrospective chart review
- Adult patients discharged from the ED with treatment for a symptomatic UTI

Primary Outcome:

- Antimicrobial susceptibility of urinary pathogens isolated from non-admitted ambulatory ED and psychiatric adult patients

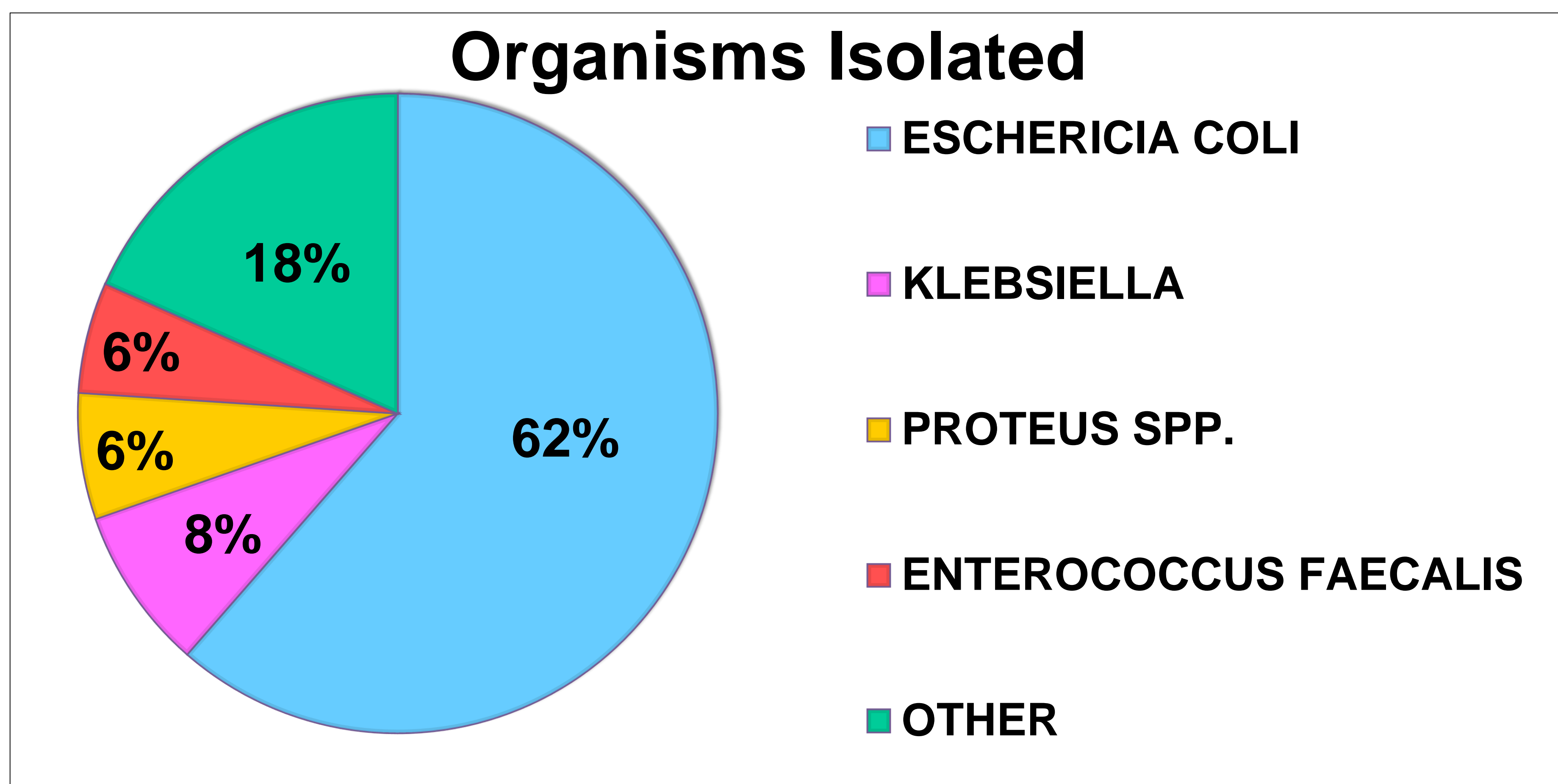
Secondary Outcomes:

- Identify risk factors associated with resistant uropathogens
- Determine antibiotic resistance patterns of urinary pathogens isolated from patients

Methodology (Continued)

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> • ≥ 18 years old • Symptomatic UTI • ED/observation patients discharged home for UTI treatment • Boarded psychiatric patients in outpatient psychiatric units 	<ul style="list-style-type: none"> • < 18 years old • Pregnant women • Inpatient admission • Contaminated urine cultures (3+ organisms, yeast) • IV antibiotic used >24 hours within past 90 days

Results



Antibiogram Comparison Chart: E. Coli

	Number of Isolates	Amikacin	Ampicillin	Amp-Sul	Aztreonam	Cefazolin	Cefepime	Ceftriaxone	Ciprofloxacin	Gentamicin	Meropenem	Nitrofurantoin	Pip-Tazo	SMX-TMP
Current MMC Antibiogram	2493	99	41	46	81	80	81	80	70	84	100	98	80	66
Study Results	164	100	42	48	87	81	88	87	84	89	100	98	87	64
Brooklyn Antibiogram ²	1048			25		72		88	70			96		70

Results (Continued)

- 246 patients were included; 267 isolates identified
- 61% (n = 151) of patients were between ages 18 to 65 years old and 73% (n = 180) were female
- *E. coli* urine isolates were most susceptible to nitrofurantoin (98%) followed by cefazolin (81%), ceftriaxone (87%), and ciprofloxacin (84%)
- *E. coli* susceptibility to sulfamethoxazole/trimethoprim was 64%
- Isolates were more susceptible to ciprofloxacin in the ED compared to the institutional antibiogram (84% vs. 70%)
- 26 (10.6%) patients grew an ESBL organism and of these, 42% (11/26) had no identifiable healthcare exposure within the last 90 days

Potential Risk Factors for MDR UTI	Present (n/%)
UTI in the past year	13 (50%)
Age >65	11 (42%)
Diabetes Mellitus	5 (19%)
Inpatient admission in previous 30 days	2 (8%)
Nursing home resident	2 (8%)
Renal Transplant	0 (0%)
Hemodialysis	0 (0%)

Conclusion

- Despite limitations in sample size, this study supports using separate antibiograms and pathways for the treatment of UTI in the ED, especially in a community with high rates of local resistance to first-line agents

References

1. Dumkow, L. E., Kenney, R. M., MacDonald, N. C., Carreno, J. J., Malhotra, M. K., & Davis, S. L. (2014). Impact of a Multidisciplinary Culture Follow-up Program of Antimicrobial Therapy in the Emergency Department. *Infectious Diseases and Therapy*, 3(1), 45–53. <http://doi.org/10.1007/s40121-014-0026-x>.
2. City of New York. New York City Antibiogram: 2016 Outpatient Urinary Tract Infections. NYC Health. <https://www1.nyc.gov/site/doh/providers/resources/antibiogram.page>. Accessed August 9, 2018.

Disclosures

The authors of this presentation have no possible financial disclosures or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.