

## Antibiotic Resistance Patterns of Clinical *Escherichia coli* Urinary Isolates by Outpatient Practice Type

### Background

- Resistance of *E coli* urinary isolates to antibiotics has increased in the United States. Such resistance can lead to ineffective treatment, excess morbidity, and compromised antibiotic stewardship.<sup>1,2</sup>
- Patient groups and prescribing patterns in outpatient settings vary and may influence antibiotic resistance patterns.
- **Objective:** The investigators of this study examined results from clinical antibiotic susceptibility tests performed at Quest Diagnostics in Washington state to determine whether *E coli* urinary isolate resistance patterns differ among outpatient practice types.

### Methods

- Multivariable logistic regression models were used to examine the relationship between *E coli* urinary isolate resistance patterns and outpatient practice type.
  - Covariates in the models included age, sex, and year of test.

### Results<sup>a</sup>

- Compared to urinary *E coli* specimens from the general family practice setting, those from
  - the urology clinic setting had greater odds of resistance to ampicillin (odds ratio [OR], 1.36; 95% confidence interval [CI], 1.10 to 1.69) ciprofloxacin (OR, 2.29; 95% CI, 1.77 to 2.94), trimethoprim-sulfa (OR, 1.52; 95% CI, 1.18 to 1.94), and gentamicin (OR, 1.72; 95% CI, 1.16 to 2.46).
  - the oncology clinic setting (OR, 1.54; 95% CI, 1.08 to 2.15) and “all other specialties” (OR, 1.33; 95% CI, 1.13 to 1.56) had greater odds of resistance to ciprofloxacin.
  - the obstetrics-gynecology clinic setting had lower odds of resistance to ampicillin (OR, 0.90; 95% CI, 0.82 to 0.99) and trimethoprim-sulfa (OR, 0.83; 95% CI, 0.73 to 0.93), but had greater odds of resistance to nitrofurantoin (OR, 1.33; 95% CI, 1.03 to 1.70).

### Conclusions

- In Washington state, antibiotic resistance detected in *E coli* urinary isolates is associated with the type of outpatient clinical practice.
- These findings may be related to differences in patient morbidity and antibiotic stewardship practices. For example, resistance to nitrofurantoin was greater in the obstetrics-gynecology clinic setting, where this antibiotic is frequently prescribed to pregnant women.
- Antibiograms that are specific to different outpatient clinical settings and specialties could provide useful clinical tools to guide treatment decisions and improve antibiotic stewardship precision.

<sup>a</sup>Data updated since abstract acceptance, as reflected in the conference poster.

### Poster presentation at IDWeek 2019

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#### References

1. Foxman B. *Nat Rev Urol.* 2010;7:653-660.
2. Sanchez GV, Master, RN, Karlowsky JA, et al. *Antimicrob Agents Chemother.* 2012;56:2181-2183.