

# Relationship between Receipt of Prior Antibiotics and Presence of Antibiotic Resistance among Adult Outpatients with Complicated Urinary Tract Infections

**T. Lodise<sup>1</sup>**, R. Wei<sup>2</sup>, L. Chen<sup>2</sup>, T. Im<sup>2</sup>, K. Bruxvoort<sup>2</sup>, R. Contreras<sup>2</sup>, M. Rodriguez<sup>3</sup>, L. Friedrich<sup>3</sup>, J. Reese<sup>3</sup>, S. Tartof<sup>2</sup>

<sup>1</sup>Albany College of Pharmacy and Health Sciences - Albany (United States)

<sup>2</sup>Kaiser Permanente Southern California Department of Research & Evaluation - Pasadena (United States)

<sup>3</sup>Spero Therapeutics, Inc - Cambridge (United States)

# Disclosures

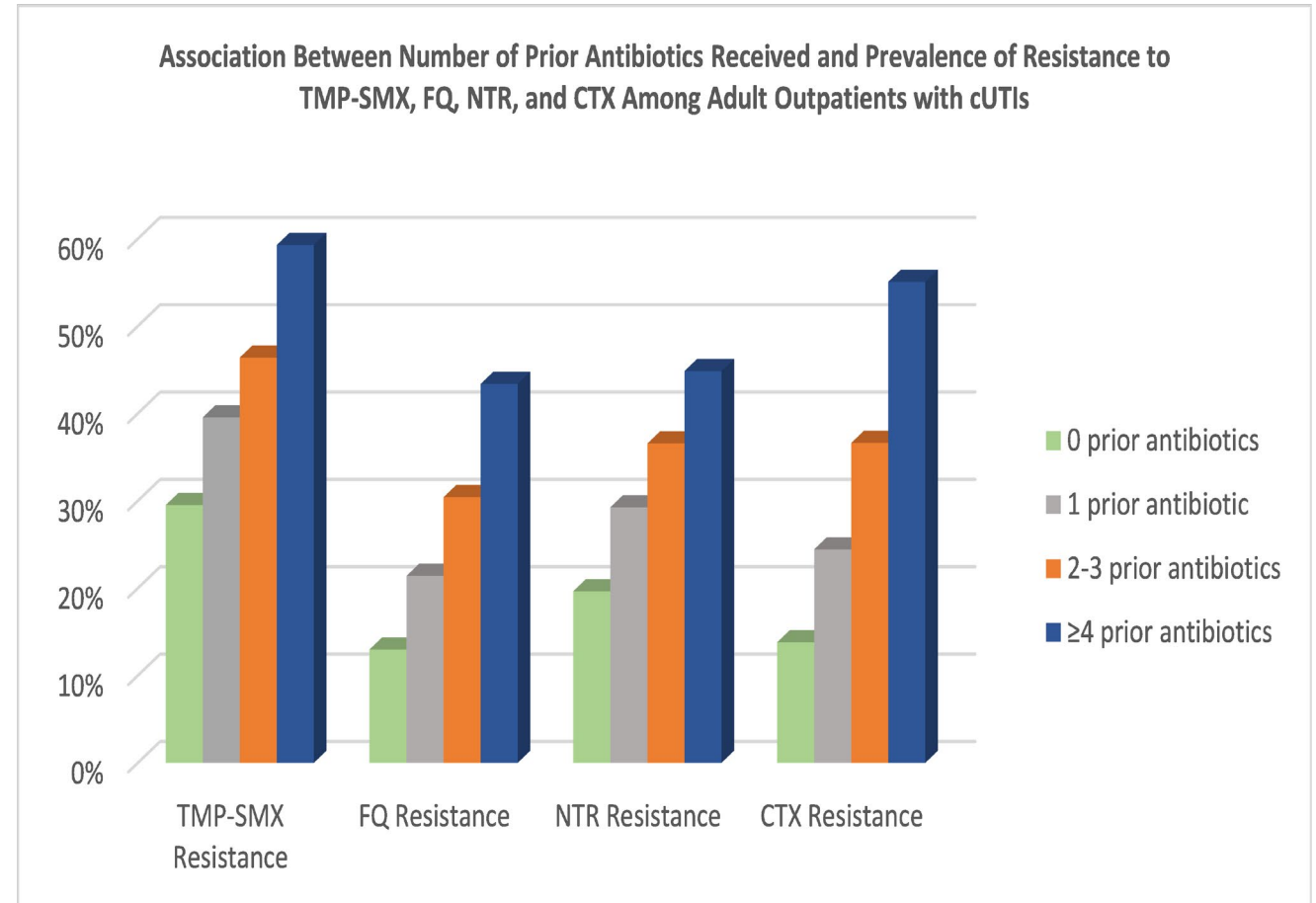
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# Objective and Methods

- **Objective:** To determine the prevalence of antibiotic resistance (AR) among adult outpatients (OPs) with complicated urinary tract infections (cUTIs) and quantify the association between receipt of prior antibiotics and prevalence of AR to commonly used cUTI antibiotics.
- **Study population:** Adult OPs with cUTIs in Kaiser Permanente Southern California (KPSC) from 2017-2020.
- **Inclusion criteria:** (1)  $\geq 18$  years, (2) cUTI diagnosis in OP setting, (3) positive urine culture (UC) with antibiotic susceptibility data, (4) receipt of antibiotic(s) for cUTI, (5) initially treated as OP (not hospitalized on UC collection date), and (6) 12 months of continuous KPSC enrollment prior to the index UC date.
- **Data elements:** Demographics, co-morbid conditions, prior antibiotics received within 90 days of UC, and antibiotic susceptibility (Clinical & Laboratory Standards Institute guidelines).
- **Outcomes:** AR to trimethoprim-sulfamethoxazole (TMP-SMX), fluoroquinolones (FQ), nitrofurantoin (NTR), and ceftriaxone (CTX) was determined among the 13 most common cUTI pathogens (95% of cUTIs).

# Results

- **Study population:** 30,450 outpatients with cUTI met criteria
  - **Mean (SD) age:** 61 years (20)
  - **Female:** 54.4%
  - **Median (IQR) Weighted Charlson score:** 2 (0-4)
  - **OP encounter site**
    - » Ambulatory (52%), ED (38%), and virtual (10%)
  - **Most common uropathogens**
    - » *E. coli* (62%), *Klebsiella sp.* (12%), *Enterococcus sp.* (7%), *P. aeruginosa* (6%), and *Proteus sp.* (5%)
  - **Prior antibiotics received**
    - » 0 (55%), 1 (19%), 2-3 (16%), and  $\geq 4$  (10%)
  - **Overall prevalence of antibiotic resistance**
    - » TMP-SMX (37%), FQ (19%), NTR (27%), and CTX (24%)



**Abbreviations:** Trimethoprim-sulfamethoxazole (TMP-SMX), fluoroquinolones (FQ), nitrofurantoin (NTR), and ceftriaxone (CTX).

**Pathogen distribution:** *Escherichia coli* (62%), *Klebsiella sp.* (12%), *Enterococcus sp.* (7%), *Pseudomonas aeruginosa* (6%), *Proteus mirabilis* (5%), *Enterobacter sp.* (3%), *Citrobacter sp.* (3%), *Morganella morganii* (1%), and *Serratia marcescens* (1%).

# Conclusions

- The prevalence of AR was high among adult OPs with cUTI and increased in a step-wise function of the number of prior antibiotics received.
  - In most cases, receipt of  $\geq 1$  prior antibiotics increased the likelihood of resistance to the antibiotics evaluated to  $>20\%$ .
- Clinicians should consider the prior antibiotic history of adult OPs with cUTI when making empiric antibiotic treatment decisions.