

Trends and Regional Differences in Community-Onset Fluoroquinolone-Resistant *E. coli* in Hospitalized Adults in the United States

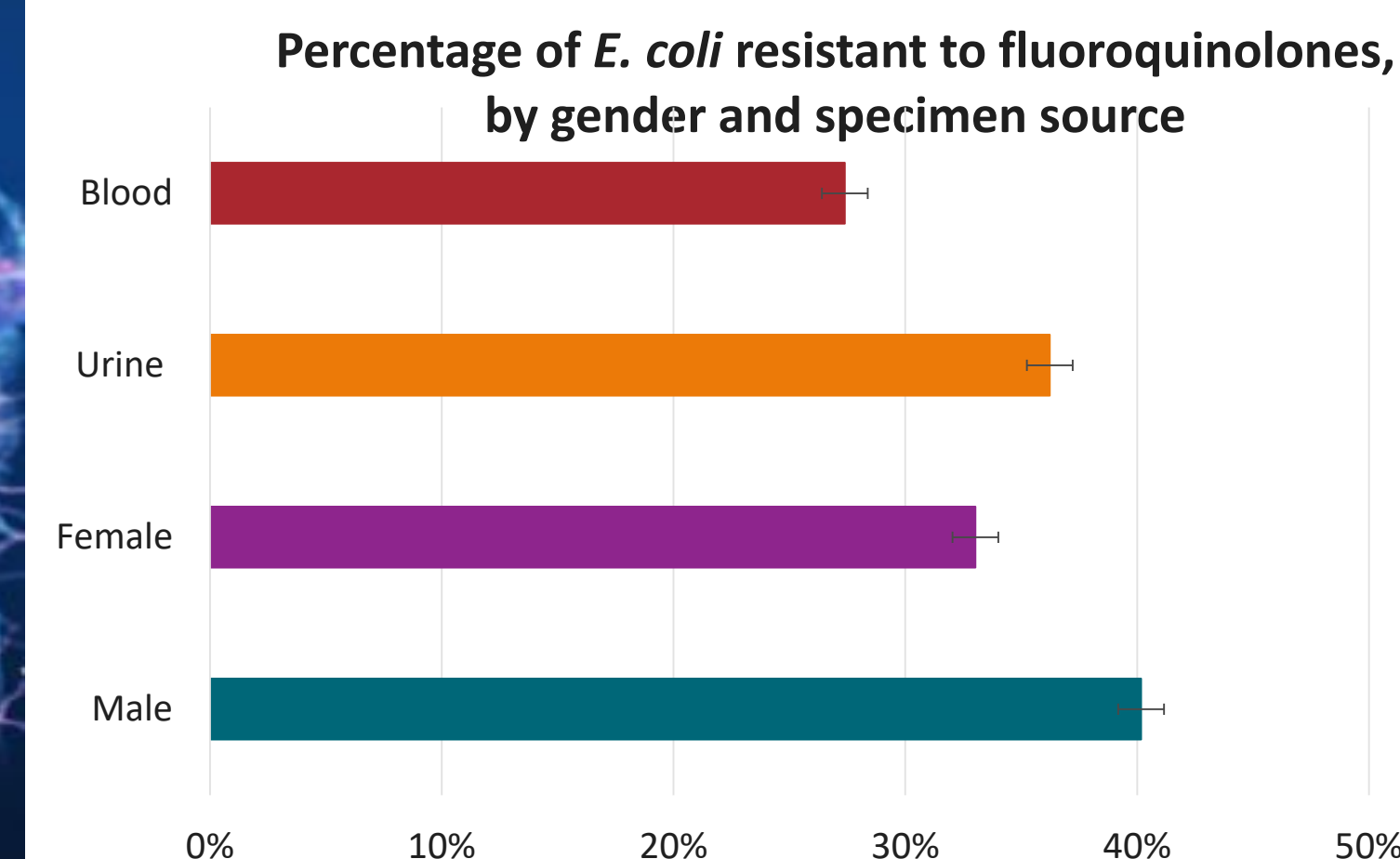
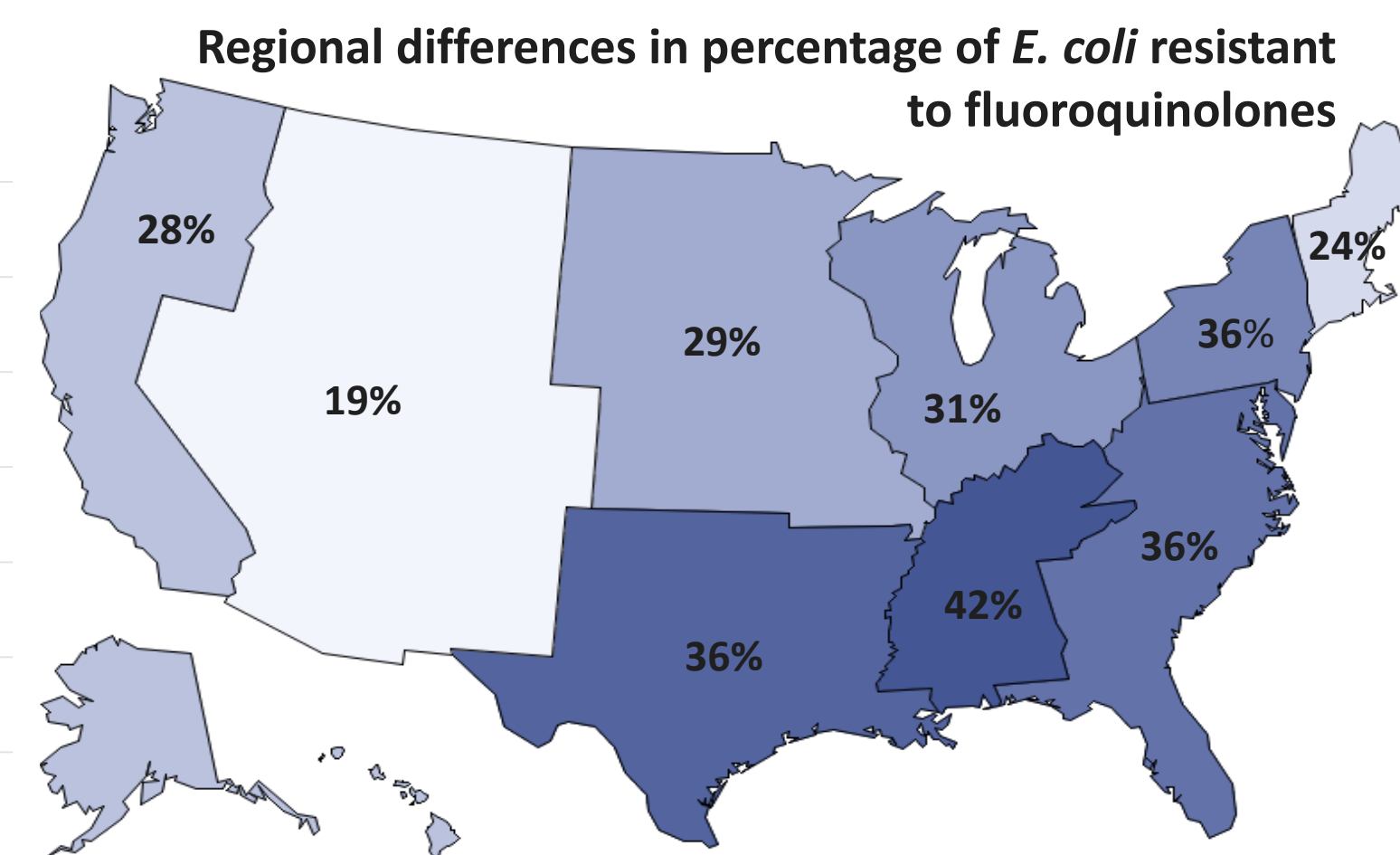
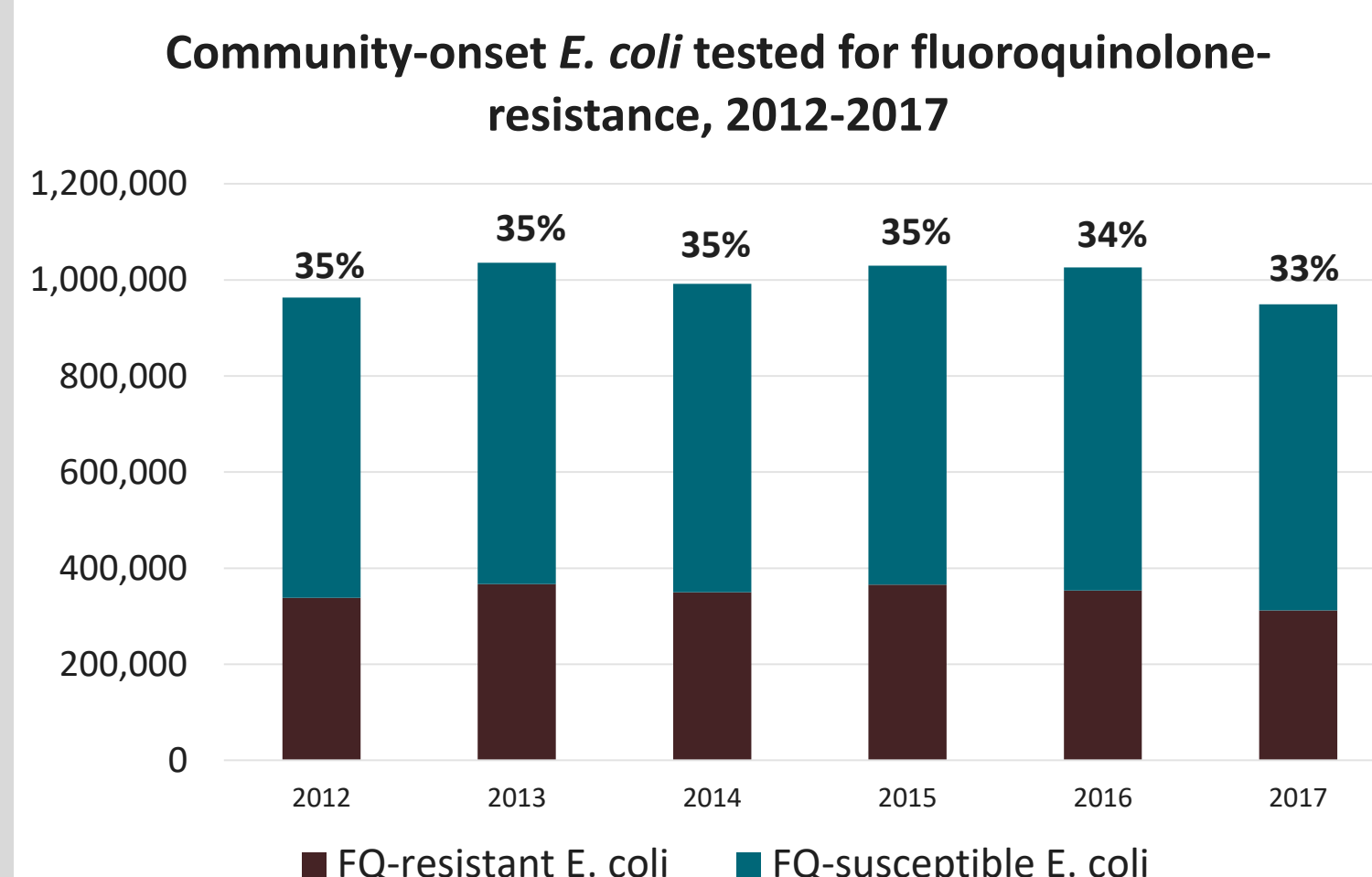
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BACKGROUND & METHODS

Escherichia coli is a common cause of community-onset (CO) infections, including urinary tract and abdominal infections, and CO sepsis. Fluoroquinolones (FQ) are used in the empiric treatment of *E. coli* infections, but FQ-resistance may limit their effectiveness.

- We measured the incidence of CO *E. coli* clinical cultures among hospitalized adults
- 2012-2017 data obtained from a hospital cohort in the Premier Healthcare Database and Cerner Health Facts
- **Fluoroquinolone-resistance:** resistance to ciprofloxacin, levofloxacin, or moxifloxacin
- **Community-onset:** cultures collected prior to day 4 of hospitalization
- We extrapolated national estimates using a raking procedure to generate weighted adjustments matching the American Hospital Association distribution for U.S. acute care hospitals
 - Weights were based on U.S. census division, bed size category, teaching status, and urban/rural designation.
- We used a weighted means survey procedure to calculate national estimates and weighted multivariable logistic regression to examine trends and regional differences.

In 2017, fluoroquinolone-resistance among community-onset *E. coli* varied by specimen source, gender, region and hospital.



RESULTS & CONCLUSIONS

- We estimated 949,393 CO *E. coli* infections with FQ susceptibility testing in 2017
 - 312,304 (33%) were due to *E. coli* resistant to FQ
 - 76% of FQ-resistant *E. coli* isolates were isolated from urine
- No significant trend in FQ-resistant *E. coli* from 2012 to 2017 ($p = 0.85$)
- Percent FQ-resistant varied significantly by region ($p < 0.0001$) in 2017
- Percent FQ-resistant varied by hospital (2017 Q1: 26% and Q3: 39%)
- FQ-resistance rates were higher in urine than blood isolates and higher for males than females

FQ-resistance is common in CO *E. coli* infections with significant variability by region and hospital. Empiric FQ treatment for infectious syndromes commonly caused by *E. coli* may need to be reconsidered. Clinicians should consult with local antibiograms and antibiotic stewardship programs to determine the most appropriate empiric treatment of *E. coli* infections in hospitalized adults.

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