

Prevalence and Risk Factor Analysis of Trimethoprim-Sulfamethoxazole– and Fluoroquinolone-Resistant *Escherichia coli* Infection among Emergency Department Patients with Pyelonephritis

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BACKGROUND: High rates of resistance to trimethoprim-sulfamethoxazole (TMP-SMX) among uropathogenic *Escherichia coli* are recognized, and concerns exist about emerging fluoroquinolone resistance.

METHODS: Adults presenting to 11 US emergency departments with (1) flank pain and/or costovertebral tenderness, (2) temperature >38 degrees C, and (3) a presumptive diagnosis of pyelonephritis were enrolled; patients for whom 1 uropathogen grew on culture were analyzed. Epidemiologic and clinical data were collected at the time of care. The prevalence of *E. coli* in vitro antibiotic resistance and risk factors associated with TMP-SMX-resistant *E. coli* infection were determined.

RESULTS: Among 403 women with uncomplicated pyelonephritis caused by *E. coli*, the mean site rate of *E. coli* resistance to TMP-SMX was 24% (range, 13%-45%). Mean site rates of *E. coli* resistance to ciprofloxacin and levofloxacin were 1% and 3%, respectively. Only TMP-SMX exposure within 2 days before presentation and Hispanic ethnicity were associated with *E. coli* resistance to TMP-SMX (compared with resistance rates of approximately 20% among women lacking these risk factors); antibiotic exposure within 3-60 days before presentation, health care setting exposure within 30 days before presentation, history of urinary tract infections, and age >55 years were not associated with *E. coli* resistance to TMP-SMX. Among 207 patients with complicated pyelonephritis, mean site rates of *E. coli* resistance to ciprofloxacin and levofloxacin were 5% and 6%, respectively.

CONCLUSIONS: These results suggest that the prevalence of TMP-SMX-resistant infection among patients with uncomplicated pyelonephritis is > or =20% in many areas of the United States, and risk stratification cannot identify patients at low risk of infection. Rates of fluoroquinolone-resistant *E. coli* infection appear to be low among patients with uncomplicated pyelonephritis but higher among those with complicated infections. Fluoroquinolones should remain to be the preferred empirical treatment for women with uncomplicated pyelonephritis.