

# Antibiotic-resistant strain of *E. coli* increasing among older adults and residents of nursing homes

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Antibiotic-resistant *Escherichia coli* (*E. coli*) continues to proliferate, driven largely by expansion of a strain of *E. coli* known as sequence type ST131. A new study points to hospitals and long-term care facilities (LTCF) as settings in which this antibiotic-resistant strain is increasingly found. The study is published in the April issue of *Infection Control and Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America.

*E. coli* is the most common gram-negative pathogen, causing both [gastrointestinal disease](#) and extraintestinal infections such as pneumonia, meningitis, and bloodstream, urinary tract, abdominal, and [wound infections](#). Strains of *E. coli* that are resistant to single or multiple classes of antibiotics are becoming more prevalent. *E. coli* ST131 is commonly associated with fluoroquinolone resistance.

"The expansion of *E. coli* strain ST131 is recognized as a pandemic, but has received comparatively little attention in the United States," said Ritu Banerjee, lead investigator of the study. "Alarming, the pace of new antibiotic development has not kept up with the emergence of antibiotic-resistant *E. coli*, making development of strategies to halt further emergence and spread of these strains a public health priority."

In this [retrospective study](#), investigators evaluated nearly 300 consecutive patients in Olmsted County, Minnesota with extraintestinal

*E. coli* infections and found ST131 to be a dominant, antimicrobial-resistant clonal group associated with older age, long-term care facility residence, complicated infections, history of urinary tract infection, and prior antimicrobial use.

LTCF residence was the strongest predictor of ST131 infection, with LTCF residents having 8 times the risk of contracting *E. coli* ST131 compared with non-LTCF residents. This trend coincides with the increasing prevalence of ST131 among patients 65 years and older. It is likely that extensive antibiotic exposure, close contact with other antibiotic-exposed individuals, age and health-associated alterations in intestinal microbiota all contribute to the high prevalence of ST131 among the elderly population.

Patients with ST131 isolates were often treated with ineffective antibiotics at first and as a result they had recurrent or persistent symptoms. In the cohort, ST131 isolates were also more than twice as likely to be healthcare-associated infections as compared to community-associated infections.

"The finding that clonal expansion of ST131 is occurring primarily in healthcare and long-term care facilities indicates an urgent need for improved antibiotic use and infection control practices within such institutions, both to reduce selection for ST131 and to block further transmission. Efforts that focus on reducing overuse and misuse of fluoroquinolones are likely to have the greatest impact on ST131 prevalence, given the strong association between ST131 and fluoroquinolone resistance," said Banerjee.

**More information:** Ritu Banerjee, Brian Johnston, Christine Lohse, Stephen B. Porter, Connie Clabots and James R. Johnson. "Escherichia coli Sequence Type 131 Is a Dominant, Antimicrobial-Resistant Clonal Group Associated with Healthcare and Elderly Hosts." *Infection Control*

*and Hospital Epidemiology* 34:4 (April 2013).

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