

# Study finds high rate of inappropriate antibiotic prescriptions in US

May 3 2016

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Pills. Credit: Public Domain

An estimated 30 percent of outpatient oral antibiotic prescriptions in the U.S. in 2010-2011 may have been inappropriate, findings that support the need for establishing a goal for outpatient antibiotic stewardship, according to a study appearing in the May 3 issue of *JAMA*.

Antibiotic-resistant infections affect 2 million people and are associated with 23,000 deaths annually in the United States, according to the Centers for Disease Control and Prevention. Antibiotic use is the primary driver of [antibiotic resistance](#) and leads to adverse events ranging from allergic reactions to *Clostridium difficile* infections. In the United States in 2011, 262 million outpatient antibiotic prescriptions were dispensed. However, the fraction of antibiotic use that is inappropriate and amenable to reduction has been unknown.

Katherine E. Fleming-Dutra, M.D., of the Centers for Disease Control and Prevention, Atlanta, and colleagues used the 2010-2011 National Ambulatory Medical Care Survey and National Hospital Ambulatory Medical Care Survey to estimate the rates of outpatient oral antibiotic prescribing by age and diagnosis and the estimated portions of antibiotic use that may be inappropriate in adults and children in the U.S.

Of the 184,032 sampled visits, 12.6 percent of visits resulted in antibiotic prescriptions. Sinusitis was the diagnosis associated with the most antibiotic prescriptions per 1,000 population (56), followed by suppurative otitis media (ear infection; 47 prescriptions), and pharyngitis (common cause of sore throat; 43 prescriptions). Collectively, acute respiratory conditions per 1,000 population led to 221 antibiotic prescriptions annually, but only 111 antibiotic prescriptions were

estimated to be appropriate for these conditions. Per 1,000 population, among all conditions and ages combined in 2010-2011, an estimated 506 antibiotic prescriptions were written annually, and, of these, 353 antibiotic prescriptions were estimated to be appropriate.

"Half of antibiotic prescriptions for acute respiratory conditions may have been unnecessary, representing 34 million antibiotic prescriptions annually. Collectively, across all conditions, an estimated 30 percent of outpatient, oral antibiotic prescriptions may have been inappropriate. Therefore, a 15 percent reduction in overall antibiotic use would be necessary to meet the White House National Action Plan for Combating Antibiotic-Resistant Bacteria goal of reducing inappropriate antibiotic use in the outpatient setting by 50 percent by 2020," the authors write.

"This estimate of inappropriate outpatient [antibiotic prescriptions](#) can be used to inform antibiotic stewardship programs in ambulatory care by public health and health care delivery care systems in the next 5 years."

"Despite the likely conservative estimate of inappropriate outpatient antibiotic use reported in the study by Fleming-Dutra et al, these findings offer an important and useful starting point to understand prescribing practices in the ambulatory care setting. Such estimates are necessary to guide public health and outpatient stewardship efforts," write Pranita D. Tamma, M.D., M.H.S., and Sara E. Cosgrove, M.D., M.S., of the Johns Hopkins University School of Medicine, Baltimore, in an accompanying editorial.

"Attempts to improve outpatient antibiotic prescribing likely require 2 complementary strategies: (1) changing clinician behavior to alleviate concerns related to diagnostic uncertainty, alienating patients, and not conforming to peer practices and (2) educating patients and families about the role of antibiotics in medical care."

**More information:** *JAMA*, [DOI: 10.1001/jama.2016.4151](https://doi.org/10.1001/jama.2016.4151)  
*JAMA*, [DOI: 10.1001/jama.2016.4286](https://doi.org/10.1001/jama.2016.4286)

Provided by The JAMA Network Journals

Citation: Study finds high rate of inappropriate antibiotic prescriptions in US (2016, May 3)  
retrieved 28 April 2024 from  
<https://medicalxpress.com/news/2016-05-high-inappropriate-antibiotic-prescriptions.html>

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