

EDITORIAL

General Medicine

Less is more: Recommendations for achieving best practices in antibiotic use for acute upper respiratory infections

Recently, a patient presented to my practice location with symptoms of left-sided headache, facial pain, nasal congestion, and left-sided throat pain. During the interview, he requested head imaging and antibiotics for his condition. Although these are common presentations in virtual care encounters, urgent care centers (UCCs), and emergency departments (EDs) across the United States, antibiotic prescribing practices for upper respiratory conditions vary. Are antibiotics the first-line management for patients with acute respiratory conditions? If not, who are the appropriate subjects for antibiotics and when does one prescribe antibiotics? In this editorial, we summarize the evidence on antibiotic use for upper respiratory infections, predictors of antibiotic use, and interventions to reduce inappropriate use of antibiotics.

The current study by Zakharevich et al published in *JACEP Open* describes antibiotic prescription rates in a set of UCCs and EDs within the same health system, specifically for International Classification of Diseases-encoded diagnoses typically associated with viral acute respiratory infections (ARIs). The authors found nearly two thirds of those visits in a UCC resulted in an antibiotic prescription, with about half as many in an ED. They acknowledge the limitation of generalizability of a single health system, and the broader overprescription landscape is still uneven. More important, these results reinforce the common sentiment that inappropriate prescription rates, however variable, deserve our attention.

Although the rate of outpatient antibiotic prescriptions has generally declined over the past decade in the United States,¹ it is common knowledge that the proportion of inappropriate use remains unacceptably high. Antibiotic use has been linked to antimicrobial resistance, rising health care costs, and iatrogenic injury, accounting for 16% of adverse drug effects resulting in ED visits and 7% resulting in hospitalization.²

The diagnosis leading to the most frequent inappropriate prescribing of antibiotics is ARIs, including bronchitis, otitis media, pharyngitis, sinusitis, tonsillitis, or other presumed viral etiology.^{3,4} Geographic location, clinical setting, individual clinician practice, and patient demographics are strong predictors of non-adherence to antibiotic guideline recommendations for ARIs across EDs and UCCs.^{5,6} For patients seen via telemedicine applications, direct-to-consumer groups were more than twice as likely to be prescribed an antibiotic for ARIs than patients presenting in the ED despite identical technologies and

physician groups.⁷ Unaffiliated, vendor-supplied emergency physicians were more likely to prescribe an antibiotic than those who were system employed.⁸ Although overprescription is sometimes blamed on the solicitation of patient satisfaction, antibiotic prescriptions have not been found to be associated with increased odds of top box Press Ganey scores.⁹

The physical health care settings most prone to inappropriate use are uncertain, with conflicting reports that gesture between the ED or UCC and other office-based settings.¹⁰⁻¹² Although reports demonstrate decreased or stagnated antibiotic use in the ED,¹³⁻¹⁵ and there is a paucity of literature regarding UCC trends.

Current recommendations on the use of antibiotics in acute ARIs from the Infections Diseases Society of America (IDSA) and the Centers for Disease Control and Prevention (CDC) address strategies for treating acute bronchitis, pharyngitis, acute rhinosinusitis, and non-specific upper respiratory infection (URI) (the "common cold").¹⁶ The IDSA recommends antibiotics for pharyngitis only when a patient tests positive for streptococcal infection. Clinical confirmation of acute bacterial rhinosinusitis may warrant antibiotic treatment, with consideration of an episode of watchful waiting. Antibiotics are not routinely recommended for non-specific URI or acute bronchitis.¹⁶

Although Zakharevich et al found that EDs had a lower percentage of inappropriate antibiotic than UCCs, we believe that there is room for improvement in both settings. As mentioned, multiple factors have been theorized to contribute to the overprescription of antibiotics including perceived patient expectations, time pressures, and diagnostic uncertainties.¹⁷ Addressing or alleviating these concerns may help guide methods to improve prescriber adherence to antibiotic treatment recommendations.

We recommend adapting multimodal strategies to promote a "less is more" antibiotic prescribing pattern that adheres to best practice guidelines.¹⁸⁻²⁰ The CDC highlights 4 stewardship elements: organizational commitment, providing educational guidance, implementing policies and initiatives, and assessing individual practices while providing feedback.¹⁹ Proposed educational methods include presentations at grand rounds or dissemination of easy to digest materials in the hospital intranet, and action initiatives can involve building a treatment algorithm order set into the electronic medical record. Further, patient engagement and education also played an important role in antibiotic

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stewardship. Tonazzi et al found that a model of delayed prescribing in which patients were educated to fill an antibiotic prescription only if their symptoms became consistent with descriptions of a bacterial infection decreased antibiotic usage rates.²⁰

In summary, antibiotic use for URIs varies but remains a concern. Therefore, to reduce inappropriate use of antibiotics, further study of the unique factors that contribute to antibiotic prescribing practices in the ED and UCC, as well as implementing strategies to minimize use in regions or settings with high use, must be prioritized. The effects of these efforts must be monitored over time.

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Joe Sills MD¹

Eric Boccio MD^{1,2}

Prasanthi Govindarajan MBBS, MAS³

Youyou Duanmu MD, MPH³

¹Department of Emergency Medicine, UMass Chan Medical School – Baystate, Springfield, Massachusetts, USA

²Institute for Healthcare Delivery and Population Science, UMass Chan Medical School - Baystate, Springfield, Massachusetts, USA

³Department of Emergency Medicine, Stanford Health Care, Stanford Medicine, Palo Alto, California, USA

Correspondence

Prasanthi Govindarajan, MBBS, MAS, Department of Emergency Medicine, Stanford Health Care, Stanford Medicine, Palo Alto, CA, USA.

Email: pgovinda@stanford.edu

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