

Overuse and overprescribing of antibiotics

Appropriate use of antibiotics is necessary to target drug-resistant bacterial infections and prevent further bacterial resistance from emerging.

Antibiotic overuse and overprescribing in outpatient settings

Antibiotic overprescribing is most prominent in outpatient settings such as clinics and emergency departments. In Europe, approximately 80% to 90% of antibiotic prescriptions are written by general practitioners.¹ Rates of outpatient prescribing are similar in the United States, and the CDC estimates that at least 30% of outpatient antibiotic prescriptions are unnecessary. Most inappropriate use of antibiotics in outpatient facilities occurs when antibiotics are prescribed for viral respiratory infections, such as viral bronchitis, otitis, and sinusitis.²

Other examples of inappropriate use include prescribing a non–first-line antibiotic or an antibiotic with excessively broad-spectrum activity for a susceptible infection or an infection that may be treated with a narrow-spectrum drug.²

According to the Mayo Clinic, antibiotic overuse and overprescribing in outpatient care can be attributed to clinicians prescribing antibiotics before test results confirm a bacterial infection, patient pressure to receive an antibiotic prescription from their provider, patients taking antibiotics they have purchased online or in another country after self-diagnosing a bacterial illness, and patients taking antibiotics left over from a previous prescription.³

Stewardship interventions to prevent antibiotic overprescribing in outpatient settings may include patient and clinician education; point-of-care diagnostics to establish the cause of illness; development of processes, protocols, and guidelines aimed at reducing inappropriate antibiotic use; and review of prescriptions by a trained pharmacist or physician with appropriate feedback to the prescribing provider.

Antibiotic overuse and overprescribing in hospitals

The CDC estimates that more than 70% of the bacteria responsible for the 2 million infections acquired in US hospitals each year are resistant to at least one commonly used antibiotic, and 20% to 50% of antibiotics prescribed in US acute-care hospitals are unnecessary or inappropriate.⁴

Examples of interventions to prevent overuse or overprescribing of antibiotics in hospitals, including intensive care units, include use of rapid diagnostics and community or hospital-based resistance data to determine appropriate empiric treatment, avoidance of administering unnecessary broad-spectrum antibiotics, shortening the duration of therapy whenever possible, and basing treatment on pharmacokinetic and pharmacodynamic characteristics of the patient and his or her infection.⁵

Risks of antibiotic overuse and overprescribing

Risks of antibiotic overuse or overprescribing include not only increases in antibiotic resistance, but increases in disease severity, disease length, health complications and adverse effects, risk of death, healthcare costs, re-hospitalization, and need for medical treatment of health problems that previously may have resolved on their own.¹

1. Llor C, Bjerrum L. Antimicrobial resistance: risk associated with antibiotic overuse and initiatives to reduce the problem. *Ther Adv Drug Saf* 2014 Dec;5(6):229-41 [[Abstract \(http://journals.sagepub.com/doi/abs/10.1177/2042098614554919\)](http://journals.sagepub.com/doi/abs/10.1177/2042098614554919).]
2. US Centers for Disease Control and Prevention. CDC: 1 in 3 antibiotic prescriptions unnecessary. May 3, 2016 [[Full text \(https://www.cdc.gov/media/releases/2016/p0503-unnecessary-prescriptions.html\)](https://www.cdc.gov/media/releases/2016/p0503-unnecessary-prescriptions.html).]
3. Mayo Clinic. Antibiotics: misuse puts you and others at risk. Dec 12, 2014 [[Full text \(http://www.mayoclinic.org/healthy-lifestyle/consumer-health/in-depth/antibiotics/art-20045720\)](http://www.mayoclinic.org/healthy-lifestyle/consumer-health/in-depth/antibiotics/art-20045720).]
4. US Food and Drug Administration. Battle of the bugs: fighting antibiotic resistance. Updated May 4, 2016 [[Full text \(https://www.fda.gov/drugs/resourcesforyou/consumers/ucm143568.htm\)](https://www.fda.gov/drugs/resourcesforyou/consumers/ucm143568.htm).]
5. Luyt CE, Brechot N, Trouillet JL, et al. Antibiotic stewardship in the intensive care unit. *Crit Care* 2014 Aug 13;18:480 [[Full text \(https://ccforum.biomedcentral.com/articles/10.1186/s13054-014-0480-6\)](https://ccforum.biomedcentral.com/articles/10.1186/s13054-014-0480-6).]

ASP CONTENT

- ▶ [ASP Home](#)
- ▶ [News](#)
- ▶ [Bibliography](#)
- ▶ [Clinical Tools](#)
- ▶ [ASP Podcasts, Webinars](#)
- ▶ [Policy Updates](#)
- ▶ [External Links](#)

- ▶ [Educational Multimedia](#)
- ▶ [COVID-19 & Co-infections](#)
- ▶ [Research](#)
- ▶ [Selected Reads](#)
- ▶ [Weekly Newsletters](#)

ASP TOPIC PAGES



ASP NEWSLETTER

See our subscription news options.

[Sign up now»](#)

OUR UNDERWRITERS

Grant support for ASP provided by





Unrestricted financial support provided by



PRINCIPAL
UNDERWRITER



LEADING
UNDERWRITER



BD
Advancing the
world of health

SUPPORTING
UNDERWRITER

[Become an underwriter»](#)



CIDRAP - Center for Infectious Disease Research and Policy

Office of the Vice President for Research, University of Minnesota, Minneapolis, MN

© 2022 Regents of the University of Minnesota. All rights reserved.

The University of Minnesota is an equal opportunity educator and employer.

CIDRAP | Office of the Vice President for Research | Contact U of M | Privacy Policy