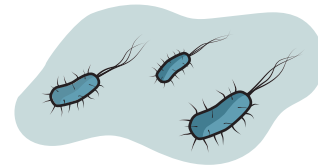


Inappropriate Antibiotic Prescribing Leads to Increased Costs, Complications

Research underscores importance of expanding outpatient antibiotic stewardship efforts

Inappropriate antibiotic prescribing in doctors' offices and other outpatient settings in the U.S. is a widespread problem that accelerates the spread of antibiotic-resistant bacteria.

Among privately-insured patients diagnosed with ...



Common bacterial infections



31-36% of children
43-56% of adults

... received an inappropriate type of antibiotic.
(i.e., not the recommended, or first-line, antibiotics based on medical guidelines).

Common viral infections

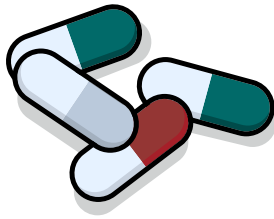
4-70%

of **children** received unnecessary antibiotics.

7-66%

of **adults** received unnecessary antibiotics.

Children	Viral Infection	Adults
70%	Bronchitis	66%
48%	Nonsuppurative middle ear infection	52%
12%	Viral upper respiratory infection	32%
9%	Bronchiolitis	N/A
4%	Influenza	7%



Inappropriate prescribing of these drugs also has measurable costs, both in terms of health care dollars and patient safety.



Increased annual health care costs

In 2017, inappropriate prescribing of antibiotics for patients with common infections resulted in:

\$74 million

in excess health care costs for pediatric patients.

Nearly **\$69 million**

in excess health care costs for adult patients.

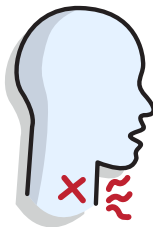
Inappropriate antibiotic prescriptions for common infections are major drivers of avoidable health care costs:

Suppurative middle ear infections



\$25.3 million
(children)

Pharyngitis (sore throat)



\$21.3 million
(children)

\$49.6 million
(adults)

Sinusitis (sinus infections)



\$7.1 million
(children)

\$19.1 million
(adults)

Viral upper respiratory infections (the common cold)

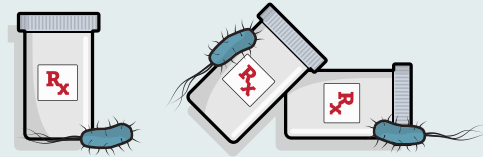


\$19.1 million
(children)

Adverse patient outcomes

Inappropriate antibiotics were associated with an increased risk of adverse drug events:

Clostridioides difficile infection (*C. diff*), formerly known as *Clostridium difficile*, is a **potentially life-threatening infection** that can be caused by antibiotic exposure.



The Centers for Disease Control and Prevention classifies *C. diff* as one of the **top five most urgent pathogens**.

Patients who received inappropriate antibiotics for pharyngitis (sore throat) were significantly more likely to get a *C. diff* infection:

8x higher risk
(children)



3x higher risk
(adults)



Other adverse events that can increase with inappropriate antibiotics include:

- **Anaphylaxis**
- **Diarrhea**
- **General allergic reaction**
- **Nausea/vomiting/abdominal pain**

Solutions

Health care organizations, including payers and health systems, have a key role to play in increasing antibiotic stewardship efforts and improving prescribing practices in outpatient settings, which research shows will protect patients and save money. Stakeholders can:

Leverage

data to assess antibiotic prescribing practices and share personalized feedback with providers.

Incentivize

prioritization and expansion of antibiotic stewardship efforts by incorporating stewardship into health care quality improvement efforts.

Educate

patients and providers on antibiotic resistance and the need for antibiotic stewardship.

Note: All data from 2017.

Sources

- 1 Butler, Anne M., et al, "Association of Inappropriate Outpatient Pediatric Antibiotic Prescriptions With Adverse Drug Events and Health Care Expenditures." <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2792723>.
- 2 Butler, Anne M., et al, "Comparative Safety and Attributable Healthcare Expenditures Following Inappropriate Versus Appropriate Outpatient Antibiotic Prescriptions Among Adults With Upper Respiratory Infections." <https://academic.oup.com/cid/advance-article-abstract/doi/10.1093/cid/ciac879/6814381?redirectedFrom=fulltext>

For further information, please visit:
pewtrusts.org/antibiotic-resistance-project

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