

Preventing and Combating Antibiotic-Resistant Infections



SUMMARY

In the U.S., 2 million people suffer from antibiotic-resistant infections every year and 23,000 die as a direct result.ⁱ When antibiotics fail, patients can suffer allergic reactions, severe diarrhea, dehydration, colitis, reproductive complications, and paralysis, among other complications, and even death.ⁱⁱ

An antibiotic-resistant infection doubles a patient's hospital stay and increases their risk of death by 200%.ⁱⁱⁱ Further, the cost of treating a patient with an antibiotic-resistant infection ranges from \$18,558 to \$29,069.^{iv} Put another way, antibiotic-resistant infections cost U.S. taxpayers approximately \$20 billion annually, and lost productivity costs for employers could be as high as \$35 billion.

Causes of the Problem

The root of antibiotic resistance is multifaceted and will require comprehensive, collaborative efforts to tackle it holistically and protect patients. More specifically:

- Existing antibiotics become less effective as the bacteria continue to evolve and acquire mechanisms of resistance.
- Some physicians over-prescribe antibiotics to patients, with the vast majority of inappropriate prescriptions being prescribed during a doctor's office visit.^v In fact, nearly one-quarter of antibiotic prescriptions filled in 2016 were unnecessary and 36% were only "potentially appropriate" for the ailments that they were prescribed to treat.^{vi}
- Lastly, there are limited options. New antibiotics are needed to combat super-bugs, which are resistant to current means of treatment. Pharmaceutical companies have expressed hesitation to invest in the development of new drugs.



Government Efforts to Alleviate the Problem

The federal government has implemented several strategies, councils, and both national and international programs to help tackle the issue of antibiotic resistance.

- **Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria:** The Council provides advice, information, and recommendations to the Secretary of Health and Human Services regarding programs and policies to support and evaluate activities related to combating antibiotic-resistant bacteria.^{vii}
- **U.S. National Strategy and Action Plan for Combating Antibiotic-Resistant Bacteria:** The National Strategy is a plan for the U.S. to work with domestic and international partners to reduce the national and international threat of antibiotic resistance.^{viii} The Action Plan details specific steps and milestones to implement the National Strategy while also addressing recommendations from the Presidential Advisory Council.^{ix}
- **Agency for Healthcare Research and Quality (AHRQ) Safety Program for Improving Antibiotic Use:** In conjunction with the Johns Hopkins Medicine Armstrong Institute for Patient Safety and Quality and NORC at The University of Chicago, AHRQ created a program to develop and implement a bundle of interventions to improve antibiotic stewardship and antibiotic prescribing practices across acute care, long-term care, and ambulatory facilities.^x
- **The Antibiotic/Antimicrobial Resistance (AMR) Challenge:** The AMR Challenge is a yearlong effort for governments, private industries, and non-governmental organizations around the world to make formal commitments that further the progress against antimicrobial resistance.^{xi}
- **Transatlantic Task Force on Antimicrobial Resistance (TATFAR):** Created in 2009, TATFAR is a council of technical experts from Canada, the European Union, and the United States to collaborate and share best practices to strengthen domestic and global efforts to combat antimicrobial resistance; the U.S. Centers for Disease Control and Prevention (CDC) currently serves as the secretariat for TATFAR.^{xii}

How Health Insurance Providers are Tackling Antibiotic Resistance

Health insurance providers are promoting antibiotic stewardship, educating physicians and patients, leveraging data and encouraging the delivery of safe, high-quality, evidence-based care.

Implement and endorse clinical guidelines to prevent antibiotic overuse.

- Cigna, Highmark Health, Providence Health Plan, and other insurance providers embrace the [Choosing Wisely](#) initiatives that discourage the use of antibiotics when clinically inappropriate (e.g., to treat upper respiratory infections).^{xiii}

Use quality measures to prevent inappropriate antibiotic usage.

- Cigna uses measures from the Centers for Medicare and Medicaid Services (CMS) Accountable Care Organization (ACO) Quality Measures to discourage providers from inappropriate antibiotic usage.

Provide incentives that encourage responsible antibiotic use.

- Blue Cross Blue Shield of Michigan provided financial rewards for providers who used a five-step process to prevent central-line bacteremia across ICUs in the state, which significantly reduced catheter infection rates; the steps were adopted by the Department of Health and Human Services and endorsed by the Joint Commission.^{xiv}

Create and implement antibiotic stewardship programs to identify outlier prescribers and establish best practices.

- Health Care Service Corporation launched its antibiotic stewardship program, which identifies up to the top 125 antibiotic prescribers by state, specialty, and prescriptions written, and works with the providers to reduce inappropriate prescribing in the outpatient setting.

Educate patients and the community about responsible antibiotic use.

- Geisinger Health Plan has created a series of patient education articles on its website, including articles indicating where antibiotics may not be appropriate for use (such as when a patient has a virus like the flu), and works with its provider network to promote appropriate use of antibiotics.^{xv}

Endorse Antimicrobial Stewardship Centers of Excellence by the Infectious Disease Society of America.

- Summa Health, one of the largest integrated delivery systems in Ohio, was among the first to have a provider designated as a Centers of Excellence in 2017, due to its strong Antimicrobial Stewardship Program.^{xvi}

Collaborative Efforts Across Stakeholders Both Nationally and Globally

Effective solutions to combat antibiotic-resistant infections will require multi-stakeholder collaboration across public health departments, health insurance providers, physicians and other clinicians, hospitals, drug makers, veterinarians, food animal producers and purchasers, and other global partners. Working together, these industries can encourage research and development of new drugs and diagnostic innovations to antibiotic-resistant infections. They are also exploring more efficient value-based payment structures, such as licensing, to encourage responsible use of antibiotics. Below are a few case studies:

- Anthem and Kaiser Permanente are among the 150+ global organizations participating in the U.S. government's Antimicrobial Resistance (AMR) Challenge, a year-long commitment from stakeholders to accelerate the fight against antimicrobial resistance.^{xvii}
- UPMC laboratories are developing a mass spectrometry analyzer that will allow for bloodstream infection analysis within a few hours as opposed to traditional testing, which can take at least 24 hours to grow an organism before it can be defined.^{xviii}
- In June 2018, U.S. Food and Drug Administration Commissioner Scott Gottlieb suggested that a “licensing” model to combat antibiotic-resistant infections should be considered, where an institution would pay a fixed “licensing fee” for access to an antimicrobial drug, which would offer them the right to a certain number of annual doses. This model would stabilize reimbursements to aid future development and encourage responsible use of drugs.^{xix}

Conclusion

Patients can suffer serious consequences from antibiotic-resistant bacteria. The Administration, federal and state agencies, health care providers, and health insurance providers are taking steps to protect patients by promoting appropriate and responsible use of antibiotics. These efforts should continue and be expanded on in both the short- and long-term.

Endnotes

- i https://www.cdc.gov/drugresistance/biggest_threats.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fdrugresistance%2Fthreat-report-2013%2Findex.html
- ii https://www.cdc.gov/drugresistance/biggest_threats.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fdrugresistance%2Fthreat-report-2013%2Findex.html
- iii <https://www.ncbi.nlm.nih.gov/pubmed/19739972>
- iv <https://www.ncbi.nlm.nih.gov/pubmed/19739972>
- v <https://www.bmj.com/content/364/bmj.k5092>
- vi <https://www.bmj.com/content/364/bmj.k5092>
- vii <https://www.hhs.gov/ash/advisory-committees/paccarb/index.html>
- viii <https://www.cdc.gov/drugresistance/us-activities/national-strategy.html>
- ix <https://www.cdc.gov/drugresistance/us-activities/national-action-plan.html>
- x <https://safetyprogram4antibioticstewardship.org/page/AHRQ-Safety-Program-for-Improving-Antibiotic-Use>
- xi <https://www.cdc.gov/drugresistance/intl-activities/amr-challenge.html>
- xii <https://www.cdc.gov/drugresistance/tatfar/index.html>
- xiii <http://www.choosingwisely.org/>
- xiv <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4422635/>
- xv <https://www.geisinger.org/health-and-wellness/wellness-articles/2018/01/19/14/13/the-flu-and-you-why-wont-my-doctor-prescribe-antibiotics>
- xvi <https://www.summahealth.org/pressroom/allnews/2017/idsa-names-summa-health-antimicrobial-stewardship-center-of-excellence>
- xvii <https://www.cdc.gov/drugresistance/intl-activities/amr-challenge.html>
- xviii <https://www.managedcaremag.com/archives/2014/4/do-health-plans-have-role-limiting-antibiotic-resistance>
- xix <https://www.fda.gov/newsevents/newsroom/pressAnnouncements/ucm610503.htm>