

ANTIMICROBIAL RESISTANCE (AMR)

What You Should Know

Antimicrobial resistance (AMR) occurs when bacteria, viruses, fungi, and other microbes develop resistance to the medicines used to treat infections and diseases. This resistance is often caused by improper or overuse of antimicrobial drugs. AMR leads to prolonged illness and hospital stays, and increased mortality and healthcare costs.

The Centers for Disease Control and Prevention (CDC) cites AMR as one of the greatest public health challenges today. In the U.S., more than 2.8 million people contract an antimicrobial-resistant infection annually, leading to over 35,000 deaths annually.¹ Estimates show that, in 2019, over 1.27 million deaths globally could be attributed to AMR bacterial infections² and

by 2050, 10 million lives annually and \$100 trillion in economic output could be lost to AMR.³ Low- and middle-income countries will be most affected.

Combating AMR requires reduced antibiotics usage; improved infection prevention and control (IPC) measures, especially in healthcare facilities; greater access to water, sanitation and hygiene (WASH); and development of new medicines and tools. Unfortunately, research and development (R&D) has not kept pace with rising resistance. The market for new medicines and tools is not profitable, necessitating federal policies and public investment to incentivize development.

Congressional Calls to Action

Support increased investment in the development of new medicines, diagnostics, and vaccines.

Several U.S. government agencies support R&D of new tools to address and monitor AMR. These agencies—including the CDC, Biomedical Advanced Research and Development Authority, the U.S. Agency for International Development, and the National Institutes of Health—should be strongly funded and encouraged to coordinate and collaborate in accordance with the National Action Plan for Combating Antibiotic-Resistant Bacteria (CARB), 2020-2025.

Support One Health policies that reduce reliance on antimicrobials.

AMR is a One Health challenge — it affects the health of people, animals, and the environment. The usage of antibiotics in agriculture and livestock has led to antibiotic-resistant germs that can infect human populations. Addressing AMR will require solutions that are multisectoral and holistic.

Support programs that ensure sustainable access to safe WASH.

Access to WASH is critical to IPC measures, such as handwashing and wastewater management, which help to prevent and contain the spread of infections and other diseases.

Why is this investment important?

Without antimicrobials, common procedures, like routine surgeries, would be much riskier. A growing number of microbes are becoming resistant to multiple antimicrobials, causing infections that require toxic last-resort treatments. AMR increases the risk for many types of medical care and can disrupt even the most advanced health systems.

Investments that strengthen IPC measures in health-care facilities, households, schools, and markets are critical to preventing and containing the spread of diseases and infections, and reducing antibiotic use. Since many drug-resistant infections are acquired in healthcare settings, these facilities must have access to clean water, decent toilets, and good hygiene for healthcare workers to safely do their jobs.

Continued investment in the development of new antimicrobials is needed to stay ahead of AMR. Public investment can have strong returns. In 2016, the U.S. government—via BARDA and the National Institute of Allergy and Infectious Diseases—joined with Wellcome Trust to launch CARB-X, a global nonprofit partnership dedicated to accelerating antibacterial research. Since its inception, CARB-X has supported 92 projects and Phase 1 products. Its portfolio represents the world's most scientifically diverse, early development pipeline of new antibiotics, vaccines, rapid diagnostics, and other products to prevent, diagnose, and treat life-threatening bacterial infections.

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Contributors

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Resources

1. DC Antibiotic Resistance/AMR: <https://www.cdc.gov/drugresistance/index.html>

Citations

1. Murray, Christopher JL, et al. “Global Burden of Bacterial Antimicrobial Resistance in 2019: A Systematic Analysis.” *The Lancet*, vol. 399, no. 10325, 2022, pp. 629–655. [https://doi.org/10.1016/s0140-6736\(21\)02724-0](https://doi.org/10.1016/s0140-6736(21)02724-0)
2. Ibid.
3. Review of Antimicrobial Resistance. “Tackling Drug-Resistant Infections Globally: Final Report and Recommendations.” May 2016. https://amr-review.org/sites/default/files/160525_Final%20paper_with%20cover.pdf