

MITIGATING THE IMPACT OF ANTIMICROBIAL RESISTANCE ON THE UNITED STATES

AN INTEGRATED GLOBAL AND LOCAL APPROACH TO PRESERVE ANTIBIOTIC EFFECTIVENESS

PROTECTING THE ANTIBIOTICS THAT PROTECT US

Antibiotic medicines are essential tools for saving lives and restoring health, but we are witnessing the global emergence of infectious bacteria that are resistant to the drugs we have relied on for decades. Reports indicate that nearly 23,000 deaths in the United States are attributable to drug-resistant bacterial infections annually, and another 2 million people become infected. Globally the annual number of deaths could be as high as 700,000. Without new approaches, experts believe the global number could climb much higher by mid-century, which would have significant social, political and security implications for the U.S. and the world.

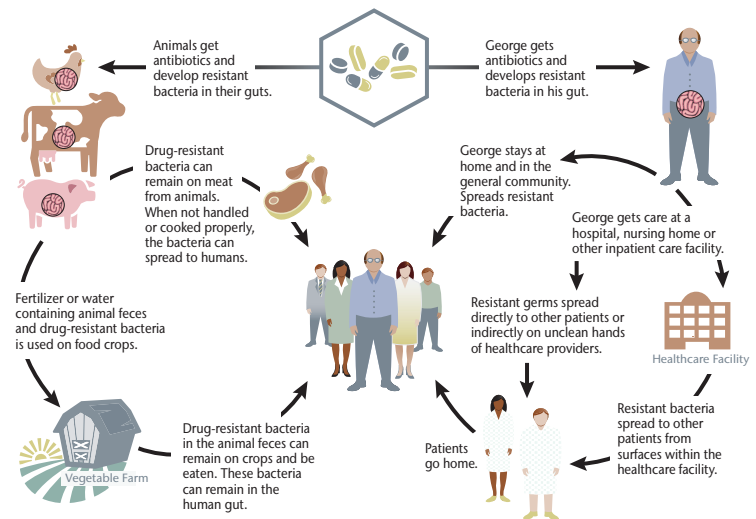
The problem is sufficiently dire that the United Nations General Assembly devoted a rare special session to anti-microbial resistance. Speaking at the meeting, U.N. Secretary General Ban Ki-moon said that antimicrobial resistance (AMR) poses, “a fundamental, long-term threat to human health, sustainable food production and development.” Participants at the U.N. meeting committed to address the root causes of AMR across multiple sectors, including human health, animal health, and the environment.

A new consortium based in the Pacific Northwest is dedicated to preserving the effectiveness of antibiotic medicines.

WHERE RESISTANCE EMERGES AND HOW IT HAPPENS

The federal government is taking steps to discourage the overuse of antibiotic medicines in the United States. But as the National Strategy for Combating Antibiotic Resistant Bacteria (CARB) highlights, limiting antimicrobial resistance in the United States will require a global approach. Resistance to medically important antibiotics usually emerges in parts of the world where antibiotic use in people and food animals is rampant, poorly regulated, and largely untracked. Factors driving high antibiotic use include poor urban sanitation, lack of clean water, and the need to keep animals healthy because of their importance to family livelihoods, local economies, and the food supply.

EXAMPLE OF HOW ANTIBIOTIC RESISTANCE SPREADS



BRINGING RESISTANT BACTERIA TO U.S. HOSPITALS

With extensive human travel and food trade networks, drug-resistant bacteria can be distributed around the world very quickly. In 2015, U.S. residents made nearly 33 million overseas trips to countries besides Canada and Mexico. U.S. hospitals are increasingly managing situations in which travelers return home, seek treatment, and introduce drug-resistant bacteria to hospital settings putting other patients at risk.

THE U.S. CAN MITIGATE THIS PROBLEM

The factors contributing to the emergence and spread of drug-resistant bacteria are complex, but significant progress is possible with informed strategies. We need to better understand how drug resistance emerges – and spreads from – different global settings into United States’ hospitals. Many organizations are following the spread of AMR. Nevertheless, a truly integrated, one-health surveillance system that tracks AMR from its emergence overseas into U.S. hospitals has not yet been achieved.

An integrated surveillance system would allow U.S. health care systems to better care for patients, create opportunities to test intervention strategies overseas that reduce the emergence and spread of AMR, and help scale successful intervention strategies, addressing public health threats before they reach our shores.

Examples of intervention strategies include increased vaccination coverage and improved sanitation to reduce the incidence of infectious diseases and need for antibiotics, improved antibiotic stewardship, and, for livestock, improved veterinary and animal husbandry procedures.

OUR COALITION CAN HELP

The Pacific Northwest is home to experts and organizations that can help the United States tackle this global issue. In 2016, numerous stakeholders came together to form the Northwest Antimicrobial Resistance Coalition. The coalition brings together health systems, universities, and both governmental and non-governmental local, regional, and global health organizations. Collectively, these organizations have the capacity and capability to help address this global challenge.

The coalition's objective is to create effective, scalable, and transferable intervention strategies that protect health at home and around the world. Our approach is to build on existing efforts and information sources rather than duplicating them. We will connect community-level data from global "hot spots" where AMR commonly emerges with global spread and entry into the U.S. health care system. This approach will drive a novel prevention strategy whereby emergence and spread of AMR is blocked at multiple points.

IMPACT

WHO Secretary General Margaret Chan recently said, "Antimicrobial resistance poses a fundamental threat to human health, development, and security. The commitments made ... must now be translated into swift, effective, lifesaving actions across the human, animal and environmental health sectors." This proposal responds to this call for action by developing an integrated global-local approach that is both scalable and transferable. Success will catalyze similar regional consortia to effectively utilize available global and national surveillance data to mitigate impact of AMR in U.S. healthcare systems. Similarly, expanding the engagement with low and middle income countries that are "hot spots" for



emergence will develop a truly global approach to a global health crisis--ultimately bringing better health for everyone, everywhere.

RESISTANCE COALITION PARTNERS

Washington Global Health Alliance

Washington State University

PATH

Seattle Children's Hospital

Providence Health and Services

Harborview Medical Center

University of Washington School of Public Health

University of Washington Division
of Allergy & Infectious Diseases

University of Washington Department of Environmental
and Occupational Health Sciences

Global Good (Intellectual Ventures)

Geneva Foundation ("associate party")

Madigan Army Medical Center ("associate party")

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