

# DRUG-RESISTANT INFECTIONS

## A Threat to Our Economic Future



### KEY FINDINGS

The report, *Drug-Resistant Infections: A Threat to Our Economic Future*, finds that drug-resistant infections have the potential to cause economic damage similar to—and likely worse than—that inflicted by the 2008 financial crisis, with the worst impact on the poorest countries and people. The report shows that tackling drug-resistant infections is now one of the highest-yield investments countries can make. It highlights actions low- and middle-income countries can take to counter drug resistance. And it explains what the World Bank Group will do to help.

#### What Is Antimicrobial Resistance (AMR)?

Antimicrobials are drugs that destroy disease-causing microbes (pathogens), such as certain bacteria and viruses. The most important antimicrobials are antibiotics, which treat bacterial infections. AMR occurs when pathogens undergo evolutionary changes that enable them to withstand antimicrobials. People and animals that encounter resistant pathogens may then develop untreatable infections. AMR is a natural process, but its spread has been dramatically accelerated by overuse and misuse of antimicrobials, even as the research pipeline for new drugs has virtually dried up.

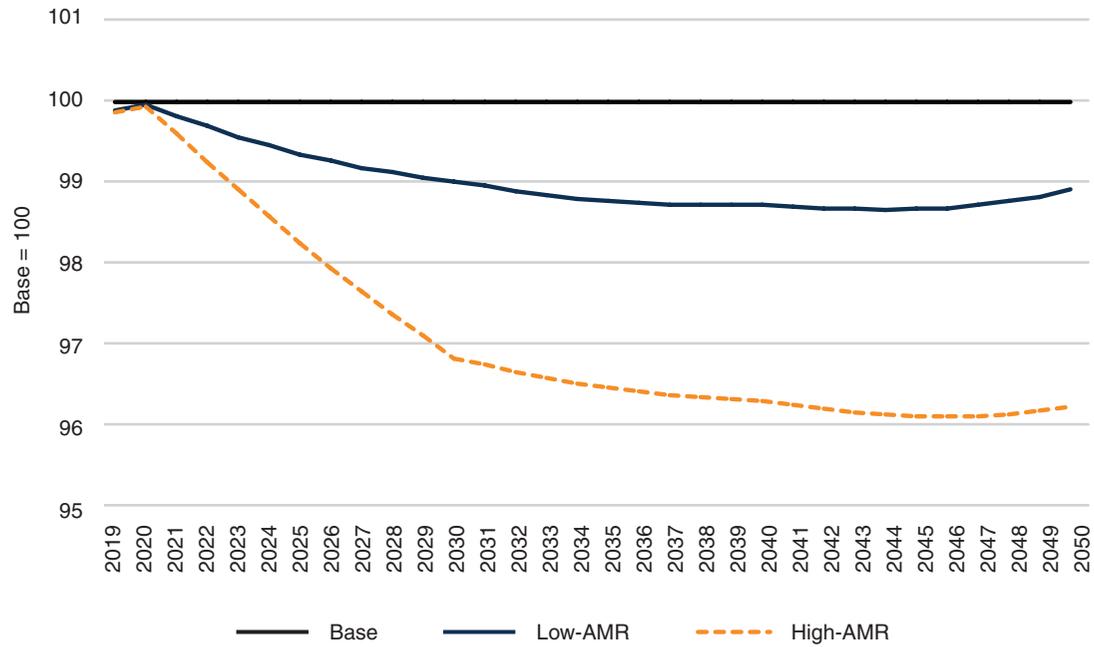
#### A Threat to the Global Economy

This report uses World Bank Group economic simulation tools to put a price tag on AMR's destructive impacts on the global economy from 2017 through 2050. In a high AMR-impact scenario, the world would lose 3.8 percent of its annual gross domestic product (GDP) by 2050. Even if AMR impacts are relatively mild, they would likely reduce annual global GDP by 1.1 percent by 2050 (Figure 1).

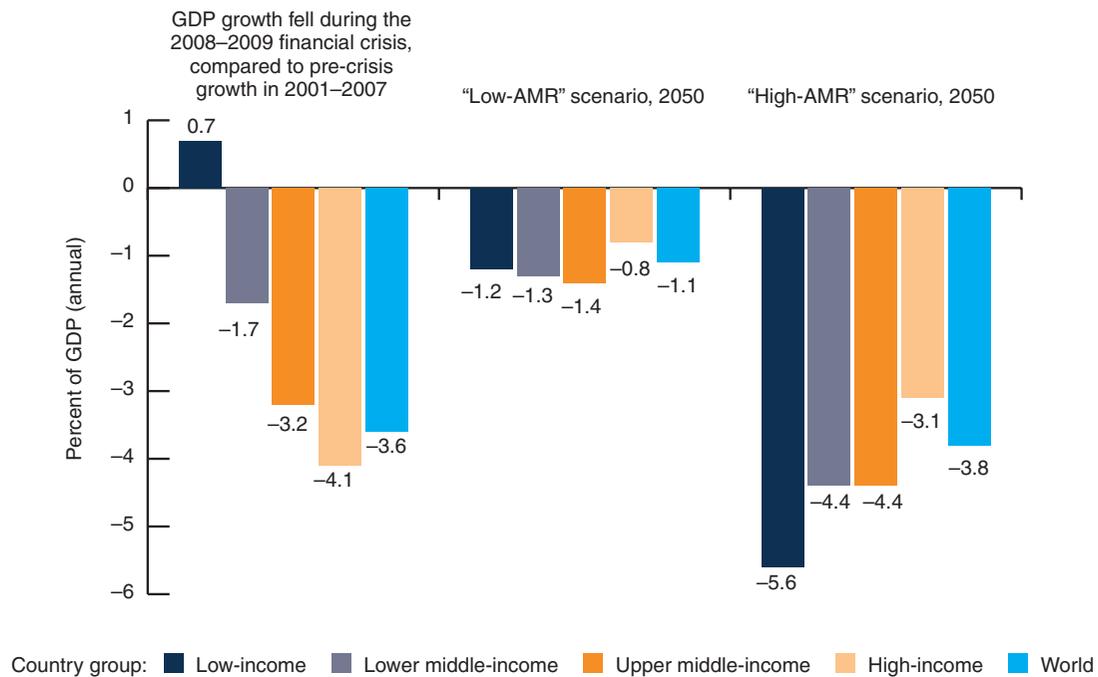
#### A Crisis That Won't Quit—with Poor Countries Hit Hardest

The annual reduction in global GDP caused by AMR could be as large as the losses provoked by the 2008 global financial crisis. However, the cost impacts of AMR on GDP would be worse than those of the financial crisis in two respects. First, they would be felt throughout the period to 2050, not just for a couple of very bad years. Second, with AMR, low-income countries would experience larger drops in economic growth than wealthy countries, so global poverty and economic inequality would increase (Figure 2).

**FIGURE 1.** Substantial and Protracted Shortfalls in Global Economic Output  
World Real GDP



**FIGURE 2.** Economic Costs of AMR May Be as Severe as During the Financial Crisis  
**AMR could reduce GDP substantially—but unlike in the recent financial crisis, the damage could last longer and affect low-income countries the most**  
(annual costs as % of GDP)



## High-Yield Investments

The cost of AMR containment in low- and middle-income countries is estimated at \$9 billion annually through 2050. The annual rate of return on this investment could reach 88 percent per year, if 75 percent of AMR's negative effects are avoided. This is an exceptional economic and health investment for countries.

## What Will It Take to Contain AMR?

AMR cannot be managed in isolation: it will need a bold, integrated public health protection approach in all countries. The surveillance, diagnostic, and control capacities needed to deal with AMR are closely related to those required to control diseases like Ebola and Zika. Instead of viewing AMR as a separate issue isolated from other health challenges, it will be more effective and less costly over time to build a common core of permanent capabilities in all countries for managing the full range of infectious threats.

## All Countries Will Benefit

The effectiveness of antimicrobial treatment is part of humanity's global "commons." All countries benefit from it, as long as it exists, and all must work together to preserve this fragile good.

Weak containment of drug-resistant infections anywhere puts all people and economies at risk. Supporting other countries to control AMR is a strategic, highly profitable use of resources for high-income and upper middle-income nations. Countries at all income levels will reap extraordinary economic and health rewards by tackling AMR.

## Where Do We Start?

Guided by WHO's 2015 Global Action Plan on AMR, the recommendations in this report target three strategic areas:

- ❖ *Health Sector:* Universal Health Coverage (UHC) reforms provide the needed enabling framework to tackle AMR. By advancing UHC, countries will strengthen AMR control in multiple dimensions. Implementation of the International Health Regulations (IHR) can also accelerate AMR action and focus global support.
- ❖ *Agriculture:* More antibiotics are used in livestock than for human health, and AMR is spreading in agricultural systems. All countries can progressively reduce the use of antibiotics in animals: by moving to cut and eventually eliminate antibiotic use for livestock growth promotion. An urgent effort is needed to strengthen country surveillance systems for tracking antimicrobial use and AMR in animals.
- ❖ *Water, Sanitation, and Hygiene:* Countries can harness the power of water and sanitation investments to prevent infections, fight AMR, and support economic growth. As leaders prioritize development investments, AMR containment benefits should be included in the expected gains from investing in water and sanitation. Delivering universal access to water, sanitation, and hygiene in health care facilities offers a powerful option for low-cost, high-yield action against AMR.

## What Will the World Bank Group Do?

Countries will lead the fight against AMR, backed by multilateral agencies and development partners. The World Bank Group will contribute by:

- ✦ **Building a Global AMR Investment Framework:** The World Bank Group will develop an investment framework to deliver the objectives of the AMR Global Action Plan. The framework will provide rigorous costing of priority AMR interventions at country, regional, and global levels. It will be a decision tool for policy makers, donors, implementers, and other partners, ensuring that AMR finance flows to where it is needed for greatest impact.
- ✦ **Applying an AMR Lens across Development Finance:** The World Bank Group will systematically review its own investment lending to support the AMR agenda across relevant sectors. We will also strengthen our institutional capacity on the ground in technical areas that can optimize our services to countries as they advance national AMR agendas.
- ✦ **Bridging Agriculture and Health for AMR Innovation:** Investment in the AMR knowledge agenda must nurture new technologies in agriculture, veterinary medicine, and human health, harnessing potential synergies among them. To foster such innovation, the World Bank is engaging multidisciplinary research networks, donors, and other partners around the idea of a combined animal and human health research center on AMR. Lessons come from network-learning models like CGIAR in agricultural research and the Coalition for Epidemic Preparedness Innovations (CEPI).
- ✦ **Bringing the Private Sector on Board:** The private sector is key to tackling AMR. Pharmaceutical and biotech firms can pursue new antimicrobials or rapid diagnostic tests to inform health professionals' prescribing choices. Development finance institutions can incentivize this research, for example through finance mechanisms that “de-link” company profits on new antimicrobials from actual sales volumes. Today, the International Finance Corporation (IFC), the World Bank Group's private-sector arm, is working with companies that manufacture or distribute affordable pharmaceuticals and medical devices and advising agricultural firms on options around antimicrobial use in livestock.
- ✦ **Leveraging Universal Health Coverage to Fight AMR:** The World Bank will work through its policy dialog and technical collaboration around UHC to support countries in leveraging health systems reforms to accelerate progress on AMR.
- ✦ **Building Resilience to Health Emergencies:** AMR is part of a wider spectrum of infectious threats that generate outbreaks with epidemic and pandemic potential. Thus, the AMR and health emergency preparedness agendas are mutually reinforcing. The World Bank will expand its action to help countries capitalize on these synergies.



The full report is available at [worldbank.org/health](http://worldbank.org/health).

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