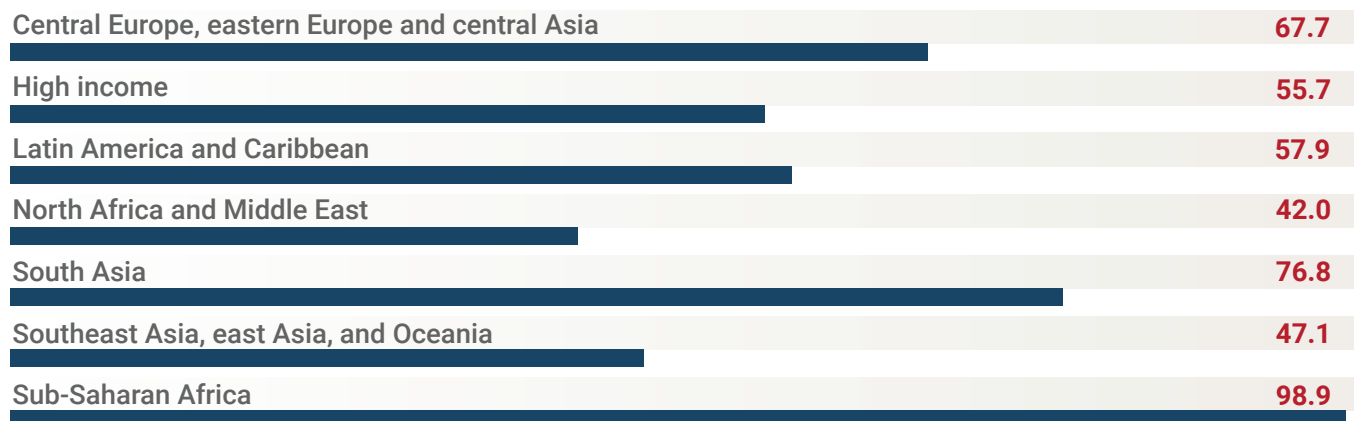


Advancing Diagnostic Services to Improve Antimicrobial Stewardship



Antimicrobial resistance (AMR) is a top public health threat and antimicrobial resistant pathogens are not confined by geographic borders, making AMR a global health security issue. In the U.S., the economic toll of treating 6 of the top AMR threats accounts for [\\$4.6 billion in annual health care costs](#), according to the Centers for Disease Control and Prevention. Additionally, [CDC reported](#) that more than 2.8 million antimicrobial-resistant infections occur in the U.S. each year, with more than 35,000 people dying annually as a result. Globally, the highest burden of AMR occurs in low-resource settings, including low- and middle-income countries (LMICs), with AMR-associated deaths in sub-Saharan Africa reaching almost 100 deaths per 100,000 people.

AMR-associated deaths per 100,000 population



Source: <https://www.thelancet.com/pb-assets/Lancet/infographics/antibiotic-resistance-2024/image-1716472421593.pdf>

Importance of Diagnostic Tests and Challenges to Detecting Resistance

Diagnostic tools and accessible services are critical to detect emerging antimicrobial resistant pathogens and to effectively respond to global health threats. However, nearly half of the global population lacks access to diagnostics. Only 1-2% of clinical laboratories in sub-Saharan Africa undertake bacteriology testing, and [capacity to perform mycology testing for fungal infections is even more limited, according to the World Health Organization](#). This poses a threat not only in LMICs but around the globe.

Developing next generation, low-cost diagnostics that provide rapid analysis of resistance and differentiation of infection type is essential to test for antimicrobial susceptibility patterns. Yet, development of such diagnostics is lagging. As a result, we often find out about resistant bacteria only after treatment failure. The resulting use of ineffective antimicrobials contributes to the emergence and spread of antimicrobial resistant pathogens, further exacerbating the problem.

Strengthening Equitable Access to Diagnostics and Treatment in LMICs

The 76th World Health Assembly adopted a resolution to strengthen diagnostics capacity around the world. As a global leader, the U.S. has a unique opportunity to combat AMR by supporting global diagnostic services to identify disease outbreaks before they spread.

The high cost of diagnostic services creates an access and implementation barrier to populations in LMICs, which is often exacerbated by insufficient laboratory capacity, limited public health resources and low public awareness.

Recommendations

Globally available and accessible diagnostics are an important part of the solution, as is the development of new tools that consider the unique challenges faced by LMICs. The U.S. and other funders have a unique opportunity to help address these challenges, addressing a critical public health threat both in the U.S. and globally by strengthening laboratory capacity, building on existing programs administered by the CDC and the United States Agency for International Development (USAID) and developing new programs and incentives as needed.

Potential policy approaches to combating AMR:



Support the development of affordable and accessible diagnostics and countermeasures to improve disease surveillance and antimicrobial stewardship and increase capacity for diagnostic services.



Improve supply chains and promote regional collaboration and networks such as the CDC's Global Antimicrobial Resistance Laboratory & Response Network, which launched in 2021 to improve the detection of existing and emerging AMR threats outside of the U.S.



Fund research on alternative treatments to antimicrobials and prevention should also be supported when feasible.



Support on-the-ground efforts to more effectively prevent, detect and rapidly respond to outbreaks, epidemics and pandemics through programs such as the USAID's Global Health Security (GHS) program.