

## Antibiotic Resistance Is Now as Big a Threat as Climate Change

While antimicrobial resistance threatens people around the world, many die because they lack access to antibiotics.

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The possibility of a post-antibiotic era looms large. Antimicrobial resistance (AMR) is an emerging threat that will impact not only the treatment of common infections but hip and knee replacements, organ transplants, cancer chemotherapy, and many of the advances of modern medicine.

It signifies the ability of the bacteria that cause infections to survive in the presence of the drugs that were commonly used to kill them

However, while drug-resistant bacterial infections threaten populations around the world, more people in low- and middle-income countries (LMICs) die because they lack access to antibiotics.

As the recent report by the Center for Disease Dynamics, Economics & Policy highlights, the majority of the world's annual 5.7 million antibiotic-treatable deaths occur in LMICs, where the mortality burden from treatable bacterial infections far exceeds the estimated annual 700,000 deaths from antibiotic-resistant infections.

AMR is not limited to human health – antimicrobials are needed to protect the systems that feed the planet, in the raising of livestock and in agriculture. However, overuse in both medical and farming environments is contributing to AMR.

Antibiotics are a precious resource that should be conserved for use when necessary – indiscriminate over-the-counter use of antibiotics without a prescription and the use of antibiotics for growth promotion in farm animals and fisheries is facilitating the rise of resistance. This is compounded by the lack of treatment of the antibiotic-contaminated waste from our houses, hospitals, farms and effluents from pharmaceutical (antibiotic) manufacturing plants. This waste directly impacts the quality of water and soil, and genes carrying resistance can easily be transferred from benign bacteria to infection-causing bacteria in waste water and sewage.

The misuse of antimicrobials and contamination in the environment has led to a potentially catastrophic rise in antibiotic resistance, which threatens our planetary health.

## **How to Counter Antimicrobial Resistance?**

Many countries, including India, have produced National Action Plans (NAPs) to address AMR using an approach that reaches across human health and environmental sectors. However, both the development and scaling-up of operational models to

address this complex problem have proven challenging, especially in low resource settings.

The volume of antibiotics used globally in human and animal health and food production continues to rise, and is a key driver of AMR. Systems to manage the risks of AMR are weak.

For sustainable growth, we need to have systems that produce enough protein for a growing human population, that is increasingly demanding meat, whilst reducing the use of antibiotics in livestock and poultry production. Countries in Europe have shown that this is possible and LMICs too need to work on solutions that satisfy local needs and fit local resources.

Improved waste water treatment systems are needed that efficiently remove antibiotic residues and genes from effluents coming out of hospitals, houses and pharmaceutical manufacturing plants.

Access to clean water and sanitation services are necessary to break the cycle of AMR transmission.

## **How to Ensure Better Access to Antibiotics Where Necessary?**

Patients in low and middle income countries are often unable to access antibiotics because they are unable to afford them, and there is limited government spending on health services, leading to out of pocket payments that drive many into poverty.

As the global community focuses on the roll out of universal health coverage, in the form of Ayushman Bharat in India for example, and improves the provision of basic health services, antibiotics must be used with care. Sustainable access to antibiotics requires antibiotics are conserved for when they are truly needed and the antibiotics used are of assured quality.

Furthermore, weak local, national, and international health systems and drug supply chains contribute to the problem of uncertain access. Barriers to access clinically appropriate antibiotics increase the death toll from treatable bacterial infections. In India alone, 57 million people are already pushed into poverty by health spending every year.

The world's poorest are also likely to be the most affected by increasing AMR – as disease-causing bacteria become increasingly resistant to common first-line antibiotics the need for second- and third-line antibiotics increases. These therapies are often more expensive and availability may be limited or non-existent in low- and middle-income countries.

Therefore, the lack of access to appropriate antibiotics not only contributes to high rates of preventable deaths but increases drug resistance which, in turn, serves as a major barrier to effective antibiotic use in LMICs.

## Need of the Hour

AMR shares similarities with other challenges to our planetary health, such as climate change, where a global response is necessary and multiple sectors are involved.

In addition, these issues are not isolated – global warming may broaden the geographical range of certain infectious diseases, affecting animals, plants and humans, and we will need access to effective antimicrobials more than ever.

The mass movement of displaced people due to war and the impact of climate change provides the conditions for resistant infections to emerge and spread.

It is challenging to address the issue of AMR effectively because multiple sectors, from human health, farming and the environment, need to come together and solutions will need to be specific to different countries. However, it is vital that we find a way of working together to conserve access to these essential medicines for the generations to come.

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