

Antimicrobial Resistance: A Daily Life Threat We Ignore

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ABSTRACT

Antibiotics have played a vital role in controlling infectious diseases and improving human and animal health. However, the widespread misuse and overuse of antibiotics in humans, livestock, and agriculture have resulted in a serious global challenge known as antimicrobial resistance (AMR). Resistant bacteria reduce the effectiveness of commonly used medicines, making infections more difficult and costly to treat and increasing the risk of treatment failure. AMR is no longer limited to hospitals but has become a growing concern in communities, food systems, and the environment. This article discusses the public health importance of antimicrobial resistance, highlights key global statistics, and emphasizes the role of responsible antibiotic use in daily life. The need for coordinated action involving humans, animals, and the environment is highlighted to ensure the continued effectiveness of antibiotics and protect public health for future generations.

INTRODUCTION

For decades, antibiotics were considered miracle medicines. A fever, a wound infection, or stomach illness could be

treated easily with a few tablets. Today, that confidence is slowly disappearing. Across the world, doctors are facing infections that no

longer respond to commonly used antibiotics. This alarming condition is known as antimicrobial resistance (AMR). According to the World Health Organization (WHO), AMR is among the top ten global public health threats facing humanity. What makes this crisis more dangerous is that it develops silently and affects everyone — not only hospital patients but also healthy people in their everyday lives (WHO, 2019).

HOW BIG IS THE PROBLEM?

Global reports clearly show the seriousness of AMR. WHO estimates that 4.95 million deaths were associated with drug-resistant bacterial infections in 2019, with 1.27 million deaths directly caused by AMR. The Centers for Disease Control and Prevention (CDC) reports that in the United States alone, 2.8 million antibiotic-resistant infections occur every year, leading to more than 35,000 deaths. If no action is taken, global projections suggest that AMR could cause 10 million deaths annually by 2050, surpassing deaths due to cancer. This makes AMR not a future threat, but a present-day reality (Indrawati *et al.*, 2021).

ANTIBIOTIC MISUSE IN DAILY LIFE

One of the main drivers of AMR is misuse of antibiotics in everyday situations. Common practices include:

- Taking antibiotics without a doctor's prescription
- Stopping medication once symptoms improve
- Using leftover antibiotics from previous illness
- Taking antibiotics for viral infections such as cold and flu

Antibiotics are effective only against bacteria, not viruses. When used unnecessarily or incorrectly, they do not kill all bacteria. The

surviving bacteria become stronger and resistant, making future infections harder to treat.

BEYOND HOSPITALS: ROLE OF ANIMALS AND FOOD

Antibiotic misuse is not limited to humans. A large proportion of antibiotics worldwide are used in food-producing animals (Van Boeckel *et al.*, 2015). The Food and Agriculture Organization (FAO) reports that nearly 73% of global antimicrobial consumption occurs in livestock. In poultry farming, antibiotics are often used for disease prevention and growth promotion. This creates ideal conditions for resistant bacteria to develop in the gut of birds (Duan *et al.*, 2008).

These bacteria can spread to humans through:

- Contaminated meat and eggs
- Improper slaughter and handling
- Poor kitchen hygiene
- Environmental contamination through waste

Thus, antibiotic resistance easily travels from farm to fork.

WHY POULTRY MATTERS IN AMR

Poultry is one of the fastest-growing livestock sectors worldwide. India ranks 2nd in egg production and 5th in meat production globally. With high demand and intensive farming, antibiotic use becomes frequent. Arpit *et al.*, 2023 have shown high resistance levels in *Escherichia coli* isolated from poultry. *E. coli* acts as an indicator organism, reflecting resistance patterns in animals, humans, and the environment. Resistant *E. coli* strains can transfer resistance genes to other bacteria, increasing the public health risk (Scicchitano *et al.*, 2024).

HOW RESISTANCE REACHES HUMANS

Resistant bacteria can reach humans through multiple pathways:

- Consumption of undercooked poultry products
- Direct contact with animals or farm environments
- Contaminated water, soil, and air
- Poor hygiene in retail meat shops

Once inside the human gut, resistant bacteria may transfer resistance genes to other microbes, making future infections difficult to manage.

IMPACT ON HEALTHCARE AND SOCIETY

Antibiotic resistance affects not only health but also the economy. Resistant infections lead to:

- Longer hospital stays
- Increased medical expenses
- Use of stronger drugs with more side effects
- Increased risk during surgeries and childbirth

The United Nations warns that AMR could push 24 million people into extreme poverty by 2030 if left unchecked.

WHAT DO GLOBAL ORGANIZATIONS RECOMMEND?

International health agencies strongly recommend:

- Antibiotics should be used only with proper prescription
- Completion of full antibiotic course
- No use of antibiotics for viral infections

- Improved hygiene and food safety
- Responsible antibiotic use in animals
- Strengthened surveillance and awareness

Vaccination, biosecurity, and alternative practices in farming can reduce dependence on antibiotics.

WHAT CAN WE DO AS INDIVIDUALS?

Antimicrobial resistance is not only the responsibility of hospitals or governments. Each of us can help slow it down through our daily choices.

- Always take antibiotics only when prescribed by a qualified doctor
- Never take medicines on your own or based on past illness
- Do not share leftover antibiotics with family or friends
- Maintain good hand hygiene and clean kitchens to prevent infections
- Choose and support safe, hygienic, and responsibly produced food

These small actions at the household level, when followed by many people, can together make a powerful difference in protecting antibiotics for the future.

Table: Shared responsibility in controlling AMR.

Who	What Can Be Done
Individuals	Use antibiotics only when prescribed
Doctors	Avoid unnecessary antibiotic prescriptions
Farmers	Follow withdrawal periods and good biosecurity practices
Pharmacists	Stop over-the-counter sale of antibiotics
Government	Strengthen AMR surveillance, regulations, and awareness

CONCLUSION

Antibiotics are a shared global resource. Their misuse today threatens their effectiveness tomorrow. The medicine has not stopped working on its own — human behaviour is making it ineffective. Antimicrobial resistance is no longer a distant scientific issue; it is already shaping our daily lives. Protecting antibiotics requires collective responsibility from doctors, farmers, policymakers, and citizens. If used wisely, these life-saving medicines can continue to protect future generations.

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