

## The Silent Pandemic of Antimicrobial Resistance (AMR)

### Why in news?

While the world is emerging from the acute phase of the COVID-19 pandemic, the very harmful but invisible pandemic of Antimicrobial Resistance (AMR) is unfortunately here to stay.

### What is AMR?

*India is the largest consumer of antibiotics in the world.*

### Antimicrobial resistance (AMR)

- AMR is the ability of a microbe to resist the effects of medication previously used to treat them.
- Resistant microbes are more difficult to treat, requiring alternative medications or higher doses, both of which may be more expensive or more toxic.
- Microbes resistant to multiple antimicrobials are called **Multi Drug Resistant (MDR)** or sometimes **Superbugs**.

### Causes of AMR

- **Usage** - There is an increasing use of antibiotics for human and veterinary purposes in the recent period.
- There is irrational consumption (over usage) of broad spectrum antibiotics.
- **Lack of effective regulation** - The current standards of Central Pollution Control Board do not include antibiotic residues, and they are not monitored in the pharmaceutical industry effluents.
- The existing good manufacturing practices (GMP) under the WHO (2016) framework is restricted to drug safety alone and does not recognise the environmental risk with pharmaceuticals products.
- **Waste Discharge** - The uncontrolled discharge of untreated urban waste is another major source for AMR in many low and middle income countries

*An Indian Council of Medical Research (ICMR) study in 2022 showed that the resistance level increases from 5% to 10% every year for broad-spectrum antimicrobials.*

### Impacts of AMR

- **Treating infections** - Microbial resistance to antibiotics has made it harder to treat infections such as pneumonia, tuberculosis (TB), blood-poisoning (septicaemia) and several food-borne diseases.
  - The global epidemic of TB has been severely impacted by multidrug resistance — patients have less than a 60% chance of recovery.
- **Health cost** - AMR imposes a huge health cost on the patient in the form of longer hospitalisation, health complications and delayed recovery.
- **Affects vulnerable patients** - It puts patients undergoing major surgeries and treatments, such as chemotherapy, at a greater risk.
- **Disease burden** - AMR adds to the burden of communicable diseases and strains the health systems of a country.

✘ *In 2019, AMR was associated with an estimated 4.95 million human deaths.*





# UP TO 10% RISE IN DRUG RESISTANCE A YEAR

## WHAT IS AMR

➤ Antimicrobials could be antibiotics, antivirals, antifungals and antiparasitics

➤ **Antimicrobial Resistance (AMR)** occurs when bacteria, viruses, fungi and parasites evolve over time to such an extent that regular medicines have no effect on them

➤ **Main cause:** Misuse and overuse of antimicrobials

➤ Drug-resistant infections are harder to treat; can cause disability, prolonged illness, hospitalisations and increased costs

➤ World Health Organisation says AMR is among the top 10 global public health threats

World Antimicrobial Awareness Week from November 18 to 24



## BURDEN OF AMR IN THE WORLD

**7,00,000** people die due to antimicrobial resistance every year

➤ Another 10 million are projected to die from it by 2050

➤ AMR kills more people than

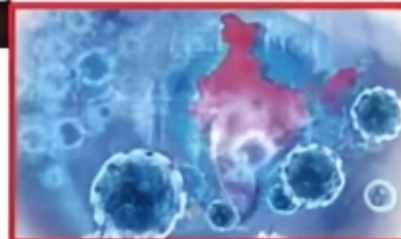
cancer and road traffic accidents combined

➤ By 2050, AMR would decrease gross domestic product (GDP) by 2%-3.5% with a fall in livestock by 3%-8%, costing US\$100 trillion to the world

## AMR IN INDIA

➤ India has been referred to as 'the AMR capital of the world'

➤ More than 70% isolates of superbugs *Escherichia coli*, *Klebsiella pneumoniae* and *Acinetobacter baumannii* and nearly half of all *Pseudomonas aeruginosa* were resistant to medicines called



fluoroquinolones and cephalosporins

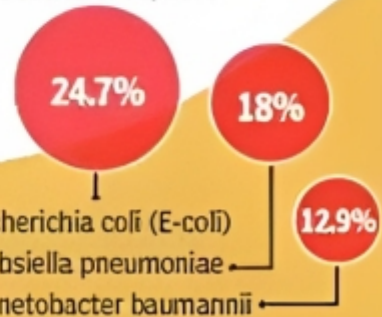
➤ Increasing rates of carbapenem resistance to the tune of 71% in *A. baumannii* led to frequent use of colistin as the last-resort antimicrobial

➤ The resistance to colistin has also emerged in India

## ICMR REPORT'S FINDINGS

○ Indian Council for Medical Research's (ICMR) latest AMR surveillance report shows rising resistance to all known antibiotics

○ The report looked at **95,728** culture positive isolates between January 1 and December 31, 2021



## FINDINGS

The most common drug-resistant bacteria were

- *Escherichia coli* (E-coli)
- *Klebsiella pneumoniae*
- *Acinetobacter baumannii*

## What efforts were taken by India to tackle the rising AMR?

- **Muscat Manifesto** - At the Third Global High-Level Ministerial Conference on Antimicrobial Resistance held in Muscat, over 30 countries adopted the Muscat

Ministerial Manifesto on AMR.

- The Muscat Manifesto recognised the need to accelerate political commitments in the implementation of [One Health Action](#) for controlling the spread of AMR.
- The conference focused on three health targets
  - Reduce the total amount of antimicrobials used in the agri-food system at least by 30-50% by 2030
  - Eliminate use in animals and food production of antimicrobials that are medically important for human health
  - Ensure that by 2030 at least 60% of overall antibiotic consumption in humans is from the WHO “Access” group of antibiotics
- **Reporting to GLASS** - India plans to strengthen private sector engagement and the reporting of data to the WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS).
- **The National Action Plan on Antimicrobial Resistance (2017-21)** - It emphasised the effectiveness of the government’s initiatives for hand hygiene and sanitation programmes such as Swachh Bharat Abhiyan, Kayakalp and Swachh Swasth Sarvatra.
- **The National Health Policy 2017** - It has offered specific guidelines regarding use and limiting the use of antibiotics as over-the-counter medications and restricting their usage in livestock.
- It also called for scrutiny of prescriptions to assess antibiotic usage in hospitals and among doctors.

### **What is the need of the hour?**

- **Reduction of usage in agri-food system** - There is an urgent need to reduce the usage of antimicrobials in the agri-food system.
  - Countries such as the Netherlands and Thailand have decreased their usage by almost 50%.
- **Effective implementation of policies** - The government policies needs strong implementation on the ground.
- **Opportunities in G20** - The various G-20 health summits spread through 2023 offer an opportunity for India to ensure that all aspects of AMR are addressed.
- Some key areas for action are
  - Surveillance of priority pathogens
  - Sharing of data, including through WHO’s GLASS platform
  - Regulatory and policy action to stop use of antibiotics
  - No use of antibiotics for growth promotion in animals
  - More government investment in research and innovation for new antibiotics
  - Special focus on combating TB and drug-resistant TB

### **References**

1. [The Hindu | A manifesto for tackling Antimicrobial Resistance](#)
2. [Times of India | AMR](#)



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