



# AntiMicrobial Resistance

**For Prelims:** Antimicrobial Resistance

**For Mains:** Antimicrobial Resistance and related issues, Initiatives taken to tackle it

## Why in News

According to the **Global Research on Antimicrobial Resistance (GRAM) report**, 1.27 million people died in 2019 as a direct result of AMR (AntiMicrobial Resistance).

- The death due to AMR is now a leading cause of death worldwide, **higher than [HIV/AIDS](#) or [malaria](#)**.
- Most of the deaths from AMR were **caused by lower respiratory infections**, such as pneumonia, and bloodstream infections, which can lead to sepsis.
  - MRSA (Methicillin-Resistant Staphylococcus Aureus) was particularly deadly, while E. coli, and several other bacteria, were also linked to high levels of drug resistance.

## Key Points

- **About:**
  - Antimicrobial resistance is the **resistance acquired by any microorganism (bacteria, viruses, fungi, parasite, etc.)** against antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics) that are used to treat infections.
  - As a result, standard treatments become ineffective, infections persist and may spread to others.
  - Microorganisms that develop antimicrobial resistance are sometimes referred to as “superbugs”.
    - The **[World Health Organization \(WHO\)](#)** has identified AMR as one of the top ten threats to global health.
- **Reasons for Spread of AMR:**
  - The **misuse of antimicrobials in medicine and inappropriate use in agriculture**.
  - **Contamination around pharmaceutical manufacturing sites** where untreated waste releases large amounts of active antimicrobials into the environment.
- **AMR in India:**
  - India, with its combination of large population, rising incomes that facilitate purchase of antibiotics, high burden of infectious diseases and easy over-the-counter access to antibiotics, is an important locus for the generation of resistance genes (such genes help bacteria in surviving on being exposed to antibiotics).
  - The multi-drug resistance determinant, **New Delhi Metallo-beta-lactamase-1 (NDM-1)**, emerged from this region to spread globally.
    - Africa, Europe and other parts of Asia have also been affected by multi-drug resistant typhoid originating from South Asia.
  - In India, over 56,000 newborn deaths each year due to sepsis are caused by organisms that are resistant to first line antibiotics.

- A study reported by [ICMR \(Indian Council of Medical Research\)](#) from 10 hospitals showed that when Covid patients acquire drug-resistant infections in hospitals, the mortality is almost 50-60%.

▪ **Measures Taken to Address AMR (India):**

- **National Programme on AMR containment:** Launched in 2012. Under this programme, AMR Surveillance Network has been strengthened by establishing labs in State Medical College.
- **National Action Plan on AMR:** It focuses on [One Health approach](#) and was launched in April 2017 with the aim of involving various stakeholder ministries/departments.
- **AMR Surveillance and Research Network (AMRSN):** It was launched in 2013, to generate evidence and capture trends and patterns of drug resistant infections in the country.
- **AMR Research & International Collaboration:** [Indian Council of Medical Research \(ICMR\)](#) has taken initiatives to develop new drugs /medicines through international collaborations in order to strengthen medical research in AMR.
  - ICMR along with Research Council of Norway (RCN) initiated a joint call for research in antimicrobial resistance in 2017.
  - ICMR along with the Federal Ministry of Education and Research (BMBF), Germany has a joint Indo-German collaboration for research on AMR.
- **Antibiotic Stewardship Program:** ICMR has initiated antibiotic stewardship program (AMSP) on a pilot project across India to control misuse and overuse of antibiotics in hospital wards and ICUs.
  - DCGI has banned 40 Fixed Dose Combinations (FDCs) which were found inappropriate.

▪ **Global Measures:**

- **World Antimicrobial Awareness Week (WAAW):**
  - Held annually since 2015, WAAW is a global campaign that aims to raise awareness of antimicrobial resistance worldwide and encourage best practices among the general public, health workers and policy makers to slow the development and spread of drug-resistant infections.
- **The Global Antimicrobial Resistance and Use Surveillance System (GLASS):**
  - WHO launched the GLASS in 2015 to continue filling knowledge gaps and to inform strategies at all levels.
  - GLASS has been **conceived to progressively incorporate data** from surveillance of AMR in humans, surveillance of the use of antimicrobial medicines, AMR in the food chain and in the environment.

[Source: IE](#)

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