



Antimicrobial Resistance

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Why in News

Recently, the **Ministry of Health and Family Welfare** highlighted **various measures to address the challenges posed by Antimicrobial Resistance (AMR)** in the country.

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”**.
- **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.**

- **Measures Taken to Address AMR:**

- **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.
- **Integrated One Health Surveillance Network for AMR:** To assess the preparedness of Indian Veterinary laboratories to participate in integrated AMR surveillance network.

ICMR has also created a veterinary standard operating procedure (Vet-SOPs) for enabling comparison of antimicrobial resistance patterns in animals and humans.
- **Others:**
 - India has undertaken many activities like **Mission Indradhanush** — to address **low vaccination coverage** — strengthened micro-planning and additional mechanisms to improve monitoring and accountability.
 - The Ministry of Health & Family Welfare (MoHFW) identified AMR as one of the top 10 priorities for the ministry's collaborative work with the World Health Organisation (WHO).

- **WHO's take on AMR:**

- The **World Health Organization (WHO)** has identified AMR as one of the top ten threats to global health.
- WHO recommends that countries must prioritize their national action plans to scale up financing and capacity building efforts, put in place stronger regulatory systems and support awareness programmes for responsible and prudent use of antimicrobials by professionals in humans, animals and plants health.
- The WHO also suggests a number of steps that can be taken at various levels to reduce the impact and also limit the spread of this resistance.

Source: PIB