Antimicrobial Resistance

Why in News

Recently, the Ministry of Animal Husbandry and Dairying has organized a workshop on the National Action Plan to combat **Antimicrobial Resistance (AMR)**, while celebrating **World Antimicrobial Awareness Week** (WAAW - November 18-24).

- This year's **theme** of WAAW was **"Spread awareness, stop resistance".**
- During WAAW an International Colour Campaign, **'Go Blue' campaign**, was launched by the AMR **tripartite organisations (World Health Organization**, **Food and Agriculture Organization** of the United Nations and the **World organisation for Animal Health**) to **help spread awareness about AMR.**

Key Points

- **About:**
    - It 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 **WHO** has declared AMR as **one of the top 10 global health threats.**
- **Reasons for Spread of AMR:**
    - Contamination **around pharmaceutical manufacturing sites** where untreated waste releases large amounts of active antimicrobials into the environment.
    - Many factors have accelerated the threat of AMR worldwide, including **overuse and misuse of medicines in humans,** livestock and agriculture, as well as poor access to clean water, sanitation and hygiene.
- **Concern:**
    - **Increased Cost of Healthcare:**
        - AMR is already **responsible for up to 7,00,000 deaths a year.** It also **increases the cost of healthcare with lengthier stays in hospitals,** additional tests and use of more expensive drugs.
    - **Undermining Progress:**
        - AMR is undermining **a century of progress in medicine,** infections that were previously treatable and curable with our drugs are becoming (or at risk of becoming) incurable (as medicines are not working against infections).
    - **Infections and Surgeries Becoming Risky:**
        - Even common infections are becoming risky and a problem. Surgeries are

becoming risky and the cause of all this is found **in the behaviour of human beings who are misusing or overusing antimicrobials.**

- **Inadequate Incentives for New Antibiotics:**
    - No new classes of antibiotics **have made it to the market in the last three decades**, largely on account of inadequate incentives for their development and production.
- **Headed Towards Antibiotic Apocalypse:**
    - Without urgent action, **we are heading to antibiotic apocalypse – a future without antibiotics**, with bacteria becoming **completely resistant to treatment** and when common infections and minor injuries could once again kill.

- **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:**
        - The Surveillance Network has been strengthened by establishing labs in State Medical College.
    - **National Action Plan on AMR:**
        - It focuses on **One Health approach** 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.
    - **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.
    - **Integrated One Health Surveillance Network for AMR:**
        - To assess the preparedness of Indian Veterinary laboratories to participate in integrated AMR surveillance network.
    - **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).

Way Forward

- Detection and **prevention of the sale of spurious drugs**, particularly in tier 2 and tier 3 cities.
- The occasional **measurement of bioavailability at pharmacokinetics** and pharmacodynamics, enforcement of antibiotics policies via prescription databases and auditing of pharmacies.
    - Pharmacokinetics is defined as **the study of the time course of drug absorption, distribution, metabo- lism, and excretion.**
- Monitoring sale of drugs with **GST (Goods and Services Tax)** tracking/matching of e-prescriptions.
- Shift from the syndromic approach to treatment of the diagnosis, **use of new technologies such as imaging and bioinformatics** and geographic information systems.
- **Adherence to the** WASH **strategy**: antibiotic-free animal feed, and antibiotics fed to animals should be different from those consumed by humans (e.g. marked by different colour schemes).

Source: PIB