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The silent pandemic of Antimicrobial Resistance

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Why is 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. The rapidly rising AMR rates also need an accelerated, multi-sectoral, global and national response.

A Brief about AMR

Antimicrobial resistance (AMR) threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria, parasites, viruses and fungi.

AMR occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death. As a result, the medicines become ineffective and infections persist in the body, increasing the risk of spread to others.

Antimicrobials - including antibiotics, antivirals, antifungals and antiparasitics - are medicines used to prevent and treat infections in humans, animals and plants. Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs".

Causes of AMR

AMR occurs naturally over time, usually through genetic changes.

Antimicrobial resistant organisms are found in people, animals, food, plants and the environment (in water, soil and air).

They can spread from person to person or between people and animals, including from food of animal origin.

The main drivers of antimicrobial resistance include

- the misuse and overuse of antimicrobials
- lack of access to clean water, sanitation and hygiene (WASH) for both humans and animals
- poor infection and disease prevention and control in health-care facilities and farms
- poor access to quality, affordable medicines, vaccines and diagnostics
- lack of awareness and knowledge
- lack of enforcement of legislation

Impact of AMR

WHO has increasingly expressed concern about the dangerously high levels of antibiotic resistance among patients across countries

Global public health response has been threatened due to rising misuse and overuse of antibiotics in humans and animals.

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Microbial resistance to antibiotics has made it harder to treat infections such as pneumonia, tuberculosis (TB), blood-poisoning (septicaemia) and several food-borne diseases.

For instance, the global epidemic of TB has been severely impacted by multidrug resistance with patients have less than a 60% chance of recovery.

AMR also imposes a huge health cost on the patient in the form of longer hospitalisation, health complications and delayed recovery.

It puts patients undergoing major surgeries and treatments, such as chemotherapy, at a greater risk.

Many times, patients recover from advanced medical procedures but succumb to untreatable infections

In 2019, AMR was associated with an estimated 4.95 million human deaths. A 2018 report by the Organisation for Economic Co-operation and Development (OECD) warned of a phenomenal increase, by 2030, of resistance to back-up antibiotics (second and third-line).

AMR adds to the burden of communicable diseases and strains the health systems of a country. 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.

An Indian Network for Surveillance of Antimicrobial Resistance (INSAR) study indicated a high rate of resistance to commonly used drugs such as ciprofloxacin, gentamicin, co-trimoxazole, erythromycin and clindamycin.

Measures taken by Indian Government

The National Action Plan on Antimicrobial Resistance (2017-21) 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 government has also attempted to increase community awareness about healthier and better food production practices, especially in the animal food industry.

The National Health Policy 2017 also offered specific guidelines regarding use of antibiotics, limiting the use of antibiotics as over-the-counter medications and banning or restricting the use of antibiotics for growth promotion in livestock.

It also called for scrutiny of prescriptions to assess antibiotic usage in hospitals and among doctors. Everything in these policies now needs strong implementation on the ground.

India and the Muscat conference

As the current G-20 president, and as a country vulnerable to this silent pandemic, India's role is critical in ensuring that AMR remains high on the global public health agenda.

India's commitment to the cause was evident at the Third Global High-Level Ministerial Conference on Antimicrobial Resistance (November 24-25, 2022) held in Muscat, where 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.

It also recognised the need to address the impact of AMR not only on humans but also on animals, and in areas of environmental health, food security and economic growth and development.

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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.

Significance of Muscat conference:

The Muscat Manifesto appears to respond to the AMR crisis by setting these three ground-breaking targets.

The manifesto encourages countries to prioritise their national action plans for AMR keeping the One Health approach.

The One Health approach requires all stakeholders to work together towards an integrated programme linking challenges of humans, terrestrial and aquatic animal, plant health, food and feed production and the environment.

This approach will enable the world to effectively prevent, predict and detect the health crisis induced by AMR.

The Way Ahead

The various G-20 health summits spread through 2023 offer an opportunity for India to ensure that all aspects of AMR are addressed and countries commit to progress.

Some key areas for action are:

- surveillance of both phenotypic and genotypic ,the priority pathogens and sharing of data, including through WHO’s GLASS platform;
- regulatory and policy action to stop use of antibiotics that are important for human health in animals;
- no use of antibiotics for growth promotion in animals;
- more government investment in research and innovation for new antibiotics;
- explore use of vaccines to prevent certain infections due to AMR organisms in humans and animals;
- special focus on combating TB and drug-resistant TB.

Tackling AMR requires constant monitoring of antibiotic consumption, identifying the types and quantities of antibiotics being used.

There is also an urgent need to reduce the usage of antimicrobials in the agri-food system. Scientific evidence suggests that the less antimicrobials are used.

- Countries such as the Netherlands and Thailand have decreased their usage by almost 50%. In China, the consumption of antibiotics in the agricultural sector has fallen substantially.
- The use of antibiotics in healthy animals to boost growth has also been reduced in the last decade in many countries.