

AMR and Phage Therapy

Why in news?

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Phage therapy has been emerged as a new counter measure for Antibody resistance.

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What is antibiotic resistance?

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- Antimicrobial resistance (AMR) is the ability of a microbe to resist the effects of medication previously used to treat them.
- Resistance arises through one of three ways: natural resistance in certain types of bacteria, genetic mutation, or by one species acquiring resistance from another.

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 Resistance can appear due to random mutations; or more commonly following gradual build-up over time, and because of misuse of antibiotics or antimicrobials.

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 Resistant microbes are increasingly difficult to treat, requiring alternative medications or higher doses, both of which may be more expensive or more toxic.

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- Microbes resistant to multiple antimicrobials are called multidrug resistant (MDR); or sometimes **superbugs**.
- \bullet Antimicrobial resistance is on the rise with millions of deaths every year. \n
- All classes of microbes develop resistance: fungi develop antifungal resistance, viruses develop antiviral resistance, protozoa develop antiprotozoal resistance, and bacteria develop antibiotic resistance.

What is the Global impact of AMR?

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- Over the past decades, antimicrobial agents have been revolutionary in alleviating communicable diseases across the world.
- In the US, more than two million people fall sick every year due to antibiotic-resistant infections, resulting in at least 23,000 deaths.
- While antibiotic resistance is a global hazard to public health, India, the largest consumer of antibiotics in the world, is notoriously seen as the epicentre of this threat.

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What is the position of AMR in India?

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- There is widespread existence of superbugs throughout the country.
- The crude infectious disease mortality rate in India today is 416.75 per 100,000 persons, which is twice the rate prevailing in the US.

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- \circ Indiscriminate use of antimic robial drugs
- Laxity of regulatory bodies in approval of antibiotics
- \circ Lack of public awareness about antibiotic resistance \n
- Injudicious use in veterinary practices

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What is the new therapy is about?

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• Bacteriophage therapy or simply phage therapy holds promise as an alternative treatment option.

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Bacteriophages are viruses that infect and kill bacteria.

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- \bullet The revitalisation of phage therapy has received increased global attention since the appearance of multidrug-resistant bacteria. $\mbox{\sc h}$
- The most striking advantage of bacteriophage therapy is the ability to tailor treatment accurately to kill the pathogenic bacteria provided the diagnostic procedures are highly accurate.

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What is the way forward?

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• Capacity building and sensitisation of all the stakeholders is an integral pre-requisite of this programme.

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 The multidisciplinary team members comprise an infectious diseases physician, a clinical pharmacist, a microbiologist, an infection control team, a hospital epidemiologist, an information system specialist, quality improvement staff, laboratory staff and nurses is required in every public health department.

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 Antibiotics should only be used when needed as prescribed by health professionals.

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• The prescriber should closely adhere to the five rights of drug administration: The right patient; the right drug; the right dose; the right route and the right time.

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Source: Business Line

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