

## Department of Biotechnology India Mission Program on Antimicrobial Resistance



Antimicrobial resistance (AMR) has emerged as a global public health challenge that renders all clinically valuable antibiotics ineffective against a broad range of disease causing pathogens. Out of broad antimicrobial resistance regime, the antibacterial resistance (ABR) is posing serious health threats to millions of humans across the globe.

Bacteria are present in and around every living being, in soil, water, air, food and equipments and gadgets we use. The bacteria easily get exchanged between humans and environment, and thus the ABR doesn't remain confined to medical setups alone which are the primary source of antibacterial resistance. The bacterial pathogens has got resistance to all most all available antibiotics including last resort antibiotics such as Colistin. Globally infections caused by multi-drug resistant (MDR) bacteria are currently considered as a major cause of morbidity & mortality and have markedly enhanced healthcare costs and out of packet expenditures of common masses.

Considering tackling AMR as a national priority, under National Action Plan endorsed by Govt. of India, the Department of Biotechnology has initiated a major mission program on antimicrobial resistance with the vision to develop indigenous and cost-effective therapies against AMR, categorization of AMR specific pathogen priority list of India, establishment of bio-repository for AMR-specific pathogens, and development of rapid and cost-effective diagnostic kits to identify AMR-specific pathogens.

The DBT is working to share the information regarding National AMR specific Pathogen list (coming soon) including a landscaping report on existing rapid and cost-effective diagnostic kits to identify AMR-specific pathogens.

Looking at urgency to act against AMR, the DBT has notified National Centre for Microbial Resource (NCMR), National Centre of Cell Sciences, Pune to function as Bio-repository for resistant microbes /infective agents including both bacteria and fungi, to carry out collection, storage, maintenance, preservation and characterization of such microbes across the country.

Some of the new initiatives launched by Indian agencies to contain AMR menace includes recent joining of India to global research hub on antimicrobial resistance. Since India is the largest consumer of antibiotics in the world and it has been observed that antibiotic consumption increased by over 100 per cent for last decade when compared to other low and middle-income countries. Secretary, DBT, Union Ministry of Science and Technology, Dr Renu Swarup said that, *“We all have a role to play to protect the efficacy of antimicrobial agents and to support the efforts of the different sectors at national, regional and global levels. Working together, we can address this threat and change the trajectory of health for humanity”* at a press release function on 13<sup>th</sup> September 2019. She further added that, *“By partnering, with the Global AMR R&D Hub, we look forward to working with all partners to leverage their existing capabilities, resources and collectively focus on new R&D intervention to address drug resistant infections”*.

In 2011, India has developed a national policy for containment of AMR to understand emergence, spread and factors influencing AMR, to setup antimicrobial program, to rationalize the use of antimicrobials and to encourage the innovation of newer effective antimicrobials. Other programmes include setting up of a National Task Force on AMR Containment (2010), "Chennai Declaration" by a consortium of the Indian Medical Societies (2012), Indian Council of Medical Research national surveillance network of laboratories, "Redline" campaign for educating public and National Action Plan on AMR 2017.

Both clinical, non-clinical studies and meta-analysis of available data on antimicrobial resistance have reflected an urgent need to develop and strengthen antimicrobial policy, standard treatment guidelines and national plan for containing AMR in India.

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