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# Anti-microbial resistance: Public-private collaboration and policy reforms can amplify R&D efforts

R&D pipeline for new antimicrobial therapies are amping up through private-public partnerships on the ground and in collaboration with experts. Such reforms can amplify the research efforts and help to coordinate better with the ecosystem for new antimicrobials and diagnostics

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*Representational image. News 18*

Antimicrobial drugs are considered one of the most important medical discoveries, killing bacteria that can cause multiple diseases. Further, the pandemic reinforced the tremendous impact vaccines and antibiotics can have on illness and death. However, the usefulness of antibiotics has come under threat. In 2020, nearly 30,000 people died from antimicrobial-resistant infections. Of these, almost 40% of the people got the disease while they were in the hospital. Antimicrobial resistance (AMR) occurs when germs like bacteria and fungi seem to develop the ability to defeat the drugs designed to kill them. This makes infections harder to treat and increases the risk of disease spread, severe illness and death. According to a recent study in the Lancet, it is estimated that AMR in bacteria caused an estimated 1.27 million deaths in 2019. To tackle the issue of microbes becoming resistant to antibiotics, the industry, along with the government, has a few priority areas:

### **Reignite R&D in AMR**

One of the most effective ways we have been working towards tackling the rising AMR challenge has been to increase R & D in the segment. The National Action Plan laid out by the Indian government includes elements of research and development, promoting investments, and collaborative activities to control AMR. We are witnessing the R&D pipeline for new antimicrobial therapies amping up through private-public partnerships on the ground and in collaboration with experts. Such collaboration and policy reforms can amplify the R&D efforts and help us coordinate better with the ecosystem for new antimicrobials and diagnostics that can deal with antimicrobial-resistant diseases.

### **Collaborative global approach**

AMR harms the global economy due to increased mortality, prolonged illness and reduced labour efficiency. In high-income countries, the loss in productivity alone is estimated at 38,000 USD per patient due to time away from work and informal care requirements from family/friends. Hence, the solution for AMR is an ambitious collaborative and coordinated plan across countries, including economic, scientific and political actors operating across various national contexts. Leading specialists worldwide launched the Review on Antimicrobial Resistance report in 2016, with some recommendations on tackling AMR from different perspectives. These recommendations tackle the underlying issues such as sanitation, prevention of

spread, R&D and building a global coalition. To create levelled preparedness across countries, we must prevent a striking rise in resistance in low-income and middle-income countries with large populations and preserve antibiotic efficacy worldwide. International bodies such as the Global AMR R&D Hub consults, cooperate and collaborate with international organisations, existing R&D initiatives, industry, researchers, non-governmental organisations and governments. The European Joint Action on Antimicrobial Resistance (AMR) and Healthcare-Associated Infections (HCAI) that was active from 2018 through 2021 fostered synergies among EU Member States by developing and implementing effective One Health policies to fight the rising threat of AMR and reduce HCAI.

### **Need for AMR vaccines**

We must utilise the other critical medical discoveries to protect the continued and sustained use of antimicrobials – Vaccines. It prevents diseases from becoming antimicrobial resistant by reducing the severity and infection rate, decreasing prolonged use of antimicrobial drugs. Vaccine essentially stops the transmission of diseases and prevents more people from contracting these very hard-to-treat infections. This decreased number of conditions reduces the chance of a pathogen mutating from a drug-sensitive to a drug-resistant form, preventing the pathogen from spreading within communities and preventing disease-related complications by reducing the incidence of secondary infections.

The effectiveness of this approach has been proven multiple times as several studies have seen a correlation between the use of the Hib vaccine and a reduction in resistance to one or more antibiotics, including a 50% decrease in resistance to ampicillin and related antibiotics in Italy in 1999 and a 64% decrease in influenza-associated respiratory disease antimicrobial prescriptions at Ontario in 2000.

### **Awareness – A call for action**

Awareness is one of the key pillars in our battle against AMR. It can help us address the root cause since there is an acute need for awareness among the public regarding the use of antibiotics and AMR. A comprehensive communication strategy is one of the various drivers of AMR and its associated solutions. The National Programme on AMR Containment, driven by the government, assigns clear leadership responsibilities in

the communication process. The industry is in alignment with the objectives set by the government and is working towards a behaviour change process of the awareness drive.

Action and awareness must work in tandem to address the rising challenge of AMR in India. We currently have a detailed roadmap by the WHO and the government. If all the stakeholders involved work towards 'Preventing Antimicrobial Resistance Together, we can improve awareness and understanding of AMR and encourage best practices among the public, reducing the further emergence and spread of AMR.

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