Community involvement and technology are key to eliminating TB

A collaborative effort involving community action and the use of artificial intelligence tools can greatly help in fighting tuberculosis and ridding India of the disease by 2025

India has set an aspirational target to eliminate tuberculosis (TB) by 2025, five years ahead of the global target set by the United Nations Sustainable Development Goals (SDGs). To achieve this goal, the Indian government has launched National Strategic Plan for Tuberculosis Elimination 2017-2025, a comprehensive and multi-sectoral approach to end the TB epidemic. The plan is centred around four strategic pillars—detection, treatment, prevention and building.

India's control program is the largest in the world, covering over a billion people in 632 districts. However, due to factors such as poverty, uneven healthcare access, stigma and low health-seeking behaviour, TB remains a significant problem in the country, with India contributing more than 20% of the global infection burden. Tribal communities in India are particularly affected, accounting for 10.4% of all TB cases. Focusing on interventions such as point-of-care testing, TB prevention measures, and a TB vaccine rolloutis crucial to address the issue.

Community and technology, the two pillars to achieve TB Mukt Bharat: To achieve these interventions, a collaborative effort involving community action, technological innovations, and multisectoral partnerships is required. The use of point-of-care testing can help in the early detection of TB, while TB preventive measures such as TPT (tuberculosis preventive therapy) can reduce the risk of infection. Implementing TPT programs in India has been challenging due to the complex and lengthy treatment regimens. Fortunately, technology has provided a solution to this problem through the development of shorter regimens for TPT, increasing the likelihood of preventing the progression of TB infection. India has also been at the forefront of TB vaccine research, with several promising vaccine candidates currently in various stages of clinical trials.

Community-driven approaches for greater trust, testing and treatment: It is critical that the TB elimination programme be accessible, affordable and inclusive, considering the infectiousness of the disease and the economic impact it has on families. The Pradhan Mantri TB-Mukt Bharat Abhiyan, based on Universal Health Coverage principles, is a commendable initiative that reinvigorates the National Strategic Plan for TB Elimination 2017-25. By emphasizing a person-centric approach and involving TB survivors as "change agents," the programme aims to reach and serve the unreached.

It is imperative to engage a diverse group of community members, including influential figures such as village heads, tribal leaders, and traditional healers, who can help overcome hesitation and fear as well as promote screening and treatment for TB.

Context-based approaches that are culturally sensitive and rooted in social context are critical to mobilise communities effectively. The 100-day Aashwasan Campaign carried out by Anamaya, the Tribal Health Collaborative (a part of the Piramal Foundation) reached out to 16 million tribal people living in the remotest and most hard-to-reach areas of the country to create awareness and increase timely testing. The campaign relied on micro-level plans developed by block-level health officials that facilitated front-line health workers to engage community influencers in behaviour change communication strategies and to navigate field-level challenges.

Technological innovations for TB-elimination in India: As we strive to augment the public health system's testing and treatment capacity, it is imperative that we develop new tools and adopt existing ones to effectively tackle the burden of tuberculosis. However, the cost of implementing newer technologies can sometimes impede their adoption, which is where innovative solutions like AI come in.

QureAI, for instance, has used AI to learn from more than a million chest X-rays to generate results within seconds and enroll patients for treatment on the same day. This is a game-changer in the fight against TB, as it not only enhances accuracy but also expedites treatment initiation.

Delay in sputum sample collection and transportation hinders timely diagnosis. Specially designed drones can safely transport the sample in much lesser time as observed in the test run implemented by Anamaya, in partnership with USAID and Redwing Labs in tribal areas in Odisha.

Treatment adherence and completion are critical challenges that need to be addressed to effectively eliminate TB, and Wadhwani AI is doing just that by using AI to predict the likelihood of a patient completing their treatment.

Most importantly, India is on the threshold of a revolution in its TB elimination programme with the phase three trials for two vaccines designed to address TB. These vaccines are being developed by the National AIDS Research Institute (NARI) under the Indian Council of Medical Research (ICMR).

Multi-sectoral Collaborations: Achieving the ambitious goal of eradicating TB from India requires a collaborative effort of different ministries, government departments, international funding organizations, development partners, community-based organizations and individuals.

By harnessing innovative solutions such as artificial intelligence, forging partnerships with stakeholders, and investing in research and development, we can effectively enhance the capacity of the public health system to eliminate TB and improve the overall health outcomes of our communities.