

Five key advancements in TB management over the past decade

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Rapid molecular diagnostic tools have probably been the most crucial shift in TB care



Tuberculosis (TB) control and eradication efforts in India started in the 1950's and have been gaining sustained momentum thereafter. In 1993, The World Health Organization declared TB a global health emergency, and India which carries the highest burden of TB has since then been working on various initiatives at both public and private sector levels to ensure early detection and treatment. Every year on World TB Day (24 March), the global health community pauses to reflect on the progress made against tuberculosis and the work that still lies ahead.

According to the WHO Global TB Report 2025, India has made steady progress in reducing tuberculosis recording a 21% decline in TB incidence, dropping from 237 cases per lakh population in 2015 to 187 per lakh in 2024. This reduction is almost twice the global rate of decline. On the other hand, the availability of treatment has dramatically increased, as coverage has gone beyond 92% and around 90% of patients in India have successfully completed their treatment, which is slightly more than the worldwide average.

These positive changes are a result of sustained policy focus, expansion of diagnostic infrastructure, and important scientific advances. This World TB Day, let us look at some of the major breakthroughs that have shaped the management and control of this disease.

Faster diagnosis through molecular testing

Rapid molecular diagnostic tools have probably been the most crucial shift in TB care. GeneXpert MTB/RIF and Truenat MTB are two such tests that can identify TB bacteria and determine if they are resistant to rifampicin in a matter of hours. Just a few years ago, diagnosing TB depended mainly on sputum microscopy which lacked sensitivity or culture-based tests, which could take several days and, in some cases, even weeks, before determining the presence of the infection.

India has steadily expanded access to molecular testing and now operates thousands of rapid molecular testing facilities across the country. Faster diagnosis allows patients to start treatment much earlier, improving recovery and helping limit the spread of the disease in the community.

Better treatment options for drug-resistant TB

Treating drug-resistant TB has historically been one of the biggest challenges in TB care. Older treatment regimens were long, complex and frequently relied on injectable medicines that caused significant side effects.

In recent years, however, treatment strategies have moved toward all-oral regimens that include newer drugs such as bedaquiline, pretomanid. And linezolid (BPaL). These regimens are easier for patients to consume and have also significantly improved outcomes for those with multidrug-resistant TB. Studies suggest treatment success rates between 75% and 86%, and some newer regimens can shorten treatment duration to six to nine months, compared with nearly two years in the past.

Expanding national screening efforts

Public health efforts have strengthened steadily over the years. The National TB Elimination Programme (NTEP) in India is undertaking active case finding and mobile clinic activities, which are mostly aimed at the high-risk and vulnerable populations. More recently, the TB Mukh Bharat Abhiyan has taken these efforts further. The programme has screened more than 19 crore individuals who belong to at-risk groups which resulted in the identification of over 24.5 lakh TB cases that included more than 8.6 lakh people who did not display any symptoms at the time. The early identification of these cases proves crucial because it enables medical professionals to initiate treatment at an earlier stage while also protecting against additional disease transmission.

Digital tools strengthening surveillance

Digital platforms are increasingly supporting TB control programmes. The Ni-kshay system which serves as India's TB patient management portal enables users to report cases in real time and monitor treatment outcomes. The platforms enable healthcare providers to track patient progress during treatment while providing public health authorities with the ability to monitor disease patterns and trends across multiple locations.

The growing role of genomics

The role of genomic sequencing in TB research has received growing interest in recent years. We can now do whole genome sequencing of Mycobacterium tuberculosis to discover multi drug resistance directly from sputum samples in less than two weeks.

This information is an essential resource which medical professionals and public health initiatives use to track disease transmission patterns and make effective treatment choices.

Looking ahead

As we enter the next phase of tuberculosis control a combination of all the above breakthroughs will ensure we reach our

goal of complete TB eradication. The World Health Organization (WHO) published its first recommendations on near point-of-care molecular tests to diagnose tuberculosis. This will boost existing testing network, close diagnostic gaps and provide access to speedier test outcomes. Going forward, molecular diagnostics and digital tools and genomic technologies, are poised to make tuberculosis detection and treatment more efficient, accurate and accessible for patients.

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