TB Elimination in India – Progress, Strategies and Challenges

Mains: *GS II – Health*

Why in News?

Recently, World Tuberculosis Day was Observed annually on March 24 as, the day commemorates Robert Koch's discovery of the tuberculosis-causing bacterium in 1882.

What are the trends in TB reduction in India?

- **Decline in TB incidence (new cases)** – India's TB incidence has fallen by ~21% between 2015 and 2024.
- This decline is almost double the global average (~12%).
- Incidence rate improved to about 187 cases per 100,000 population (2024).
- **Decline in TB mortality (deaths)** – Mortality dropped from 28 → 21 deaths per 100,000 (2015–2024).
- This reflects better treatment access and earlier diagnosis.
- **Big improvement in detection & treatment coverage** – Treatment coverage increased from ~53% (2015) → >92% (2024).
- "Missing cases" reduced dramatically (from ~15 lakh to <1 lakh).
- Massive screening campaigns (hundreds of millions screened).
- **Mixed trend in drug-resistant TB** – Overall multidrug-resistant TB (MDR-TB) is gradually declining.
    - **For Example**, 28% decline in MDR-TB cases in Mumbai (2022–2025), but regional increases still occur (e.g., Uttar Pradesh).
- **Post-COVID disruption and recovery** – TB control was disrupted during COVID-19 (2020–2022)
- This caused:
    - Missed diagnoses
    - Temporary rise in transmission
- Since 2023–2024, detection and incidence trends are improving again
- **High burden** – India still has the highest TB burden globally
- India accounts for ~25% of global TB cases

What is the nature and transmission tuberculosis?

- **Causative agent** – Tuberculosis is caused by the bacterium *Mycobacterium tuberculosis*, primarily affecting the lungs but also capable of impacting other organs such as the brain, kidneys, and spine.

- **2 forms** – The disease exists in two forms: latent and active TB.
    - While latent TB remains non-infectious, it can progress to active TB, especially among individuals with weakened immunity.
- **Transmission** – the transmission of the diseases occurs through airborne droplets when an infected person coughs, sneezes, or speaks.
- However, TB does not spread through casual contact such as handshakes, sharing food, or using public facilities.
- **Medical interventions** – Early diagnosis and sustained treatment are critical, as untreated TB can be fatal.
- Importantly, patients generally become non-infectious after two weeks of appropriate treatment, underscoring the importance of timely medical intervention.

What is the National Plan of India to End TB?

- **National Strategic Plan (NSP) 2020–25** – India's commitment to eliminating TB is reflected in its National Strategic Plan (NSP) 2020–25, which is aligned with the Sustainable Development Goals.
- **4 pillars** – The plan is structured around four pillars: Detect, Treat, Prevent, and Build.
    - **Detect** focuses on early and accurate diagnosis using advanced tools.
    - **Treat** emphasizes prompt, quality-assured treatment, including for drug-resistant TB.
    - **Prevent** involves contact tracing and preventive therapy among high-risk groups.
    - **Build** aims at strengthening health systems and addressing social determinants.
- This integrated approach ensures that TB control is not merely a medical intervention but a comprehensive public health mission.
- **National TB Elimination Programme –** *The National TB Elimination Programme (NTEP)*, formerly known as RNTCP, serves as the backbone of India's TB control efforts.
- It incorporates modern diagnostics, free treatment services, and patient-centric support systems.
- Key features of NTEP include:
    - Early diagnosis through high-quality molecular testing and community outreach
    - Free and standardized treatment for all TB patients
    - Integration with the private healthcare sector
    - Nutritional and financial support via direct benefit transfers
    - Contact tracing and preventive treatment for vulnerable populations
    - Multi-sectoral coordination to address socio-economic determinants
- The programme represents a paradigm shift from disease control to disease elimination.
- **TB Mukt Bharat Abhiyaan –** The Pradhan Mantri TB Mukt Bharat Abhiyaan, launched in 2022, has transformed TB elimination into a mass movement or *Jan Andolan*.
- It seeks to mobilize individuals, communities, corporates, and civil society to support TB patients and strengthen public health efforts.
- Under this initiative:
    - Over 20 crore individuals have been screened for TB

    - More than 28 lakh cases have been detected, including asymptomatic individuals
    - 46,118 Gram Panchayats have achieved TB-free certification
    - Treatment success rates have reached 90%, exceeding the global average
- The campaign demonstrates the power of community engagement in addressing public health challenges.
- **Nutrition and Care –** Recognizing that TB is closely linked to malnutrition and poverty, the government has implemented targeted welfare schemes.
- The *Nikshay Poshan Yojana* provides ₹1,000 per month to TB patients to ensure adequate nutrition during treatment.
- Since its inception, thousands of crores have been disbursed to beneficiaries.
- Complementing this is the *Ni-kshay Mitra* initiative, where volunteers provide food baskets, psychosocial support, and vocational assistance.
- This approach addresses not only the medical but also the socio-economic dimensions of TB, improving treatment adherence and outcomes.
- **100-Day TB Mukt Bharat Abhiyaan –** To accelerate progress, the government launched a 100-day intensive campaign in high-burden districts in December 2024.
- This initiative focused on vulnerability mapping and active case finding.
- The results have been significant:
    - Screening of over 20 crore people
    - Detection of 9 lakh asymptomatic cases
    - Enhanced awareness and community participation
- By identifying hidden cases, the campaign has helped break the chain of transmission, a critical step toward elimination.
- **Medical Innovation –** A major breakthrough in TB treatment is the introduction of the BPaLM regimen, comprising Bedaquiline, Pretomanid, Linezolid, and Moxifloxacin.
- This regimen is particularly effective for drug-resistant TB and has the following advantages:
    - Reduction of treatment duration to 6 months
    - Improved safety and efficacy
    - Better patient compliance
    - The adoption of such advanced treatment protocols reflects India's commitment to incorporating global best practices.
- **Strengthening Healthcare Infrastructure –** India's TB elimination efforts are supported by a vast healthcare network, including Ayushman Bharat's Ayushman Arogya Mandirs.
- With over 1.84 lakh centres, these facilities provide accessible and affordable diagnostic and treatment services.
- Additionally, the country has established:
    - Over 9,800 rapid molecular testing centres
    - 107 advanced laboratories for drug susceptibility testing
    - This infrastructure ensures early detection and timely intervention, even in remote areas.
- **Leveraging Technology –** India is at the forefront of integrating artificial intelligence into public health.
- AI-based tools are being used for screening, diagnosis, and treatment monitoring.
- Key innovations include:
    - **Acoustic AI** for cough analysis to detect TB signatures

    - **Radiology AI** for automated interpretation of chest X-rays
    - **Predictive analytics** to identify high-risk patients and prevent treatment failure
- These technologies have improved detection rates and reduced adverse outcomes, demonstrating the transformative potential of digital health solutions.
- **Inclusive Healthcare Delivery –** Efforts to eliminate TB extend to geographically isolated and underserved regions.
    - **For instance,** intensive screening campaigns in remote areas such as the Gurez Valley in Jammu and Kashmir have utilized mobile diagnostic units and portable X-ray machines.
- Such initiatives highlight the government's commitment to ensuring equitable healthcare access, regardless of geographical barriers.

What are the Challenges?

- **Persistent challenges** – Despite significant progress, several challenges remain:
    - A large reservoir of latent TB infections
    - Rising cases of drug-resistant TB
    - Socio-economic factors such as poverty, malnutrition, and overcrowding
    - Gaps in awareness and stigma associated with the disease
- Addressing these challenges requires sustained political commitment, increased investment in healthcare, and continued community participation.

What lies ahead?

- India's journey towards TB elimination represents one of the most ambitious public health missions in the world.
- Through a combination of strategic planning, technological innovation, community engagement, and social support, the country has achieved substantial progress in reducing TB incidence and mortality.
- However, the goal of eliminating TB by 2025 demands sustained efforts and vigilance. Strengthening healthcare systems, addressing social determinants, and leveraging emerging technologies will be crucial in maintaining momentum.
- If current trends continue, India has the potential not only to meet its target but also to serve as a global model in the fight against tuberculosis.

Reference

PIB| TB Elimination Programme Of India