

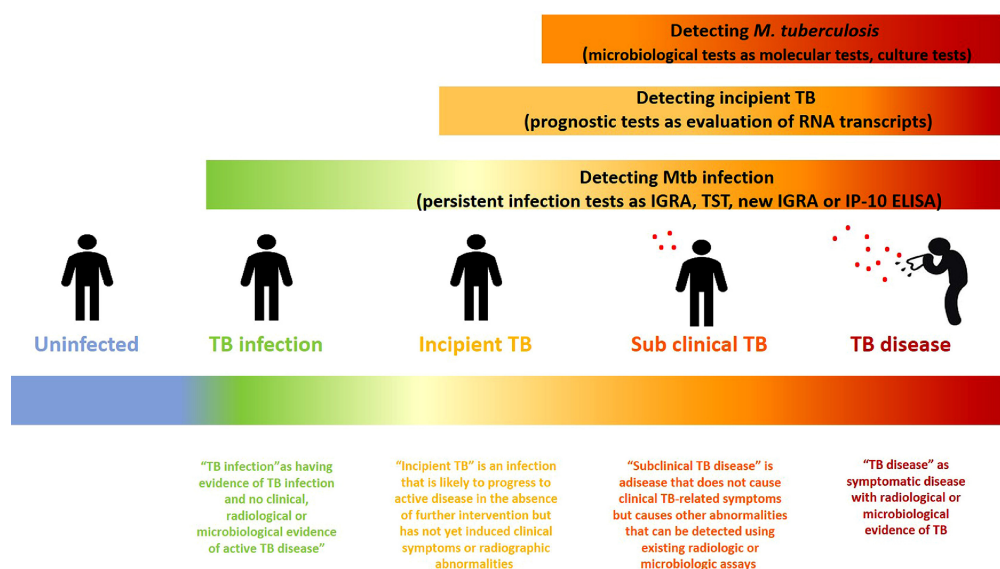
Subclinical TB

Why in news?

In a recent meeting at Health Ministry, the challenges in detecting subclinical TB cases and ensuring effective treatment was highlighted.

What is Subclinical TB?

- **Subclinical TB**- It refers to TB cases where the patient is infected with tuberculosis but *does not show the typical symptoms* associated with the disease.
- **Causal agent** - It is caused by viable ***Mycobacterium tuberculosis bacteria***.
- **Traits** - It includes cases that are culture-positive but lack typical TB symptoms such as-
 - No persistent cough.
 - No cough at all.
 - No TB-suggestive symptoms (cough, chest pain, fever, night sweats, or weight loss).



Tuberculosis (TB) remains a major public health challenge despite the UN's resolution to end TB by 2035. In 2022, there were 7.5 million new TB cases and 1.3 million deaths globally.

To know more about Tuberculosis, Click [here](#)

- **Spread** - The national TB prevalence survey (2019-2021) found that 42.6% of detected TB cases were subclinical, which would have been missed without a chest X-ray.
 - Tamil Nadu's TB survey reported 39% subclinical TB cases.

- It constitutes a significant proportion of TB cases, with up to 82.7% showing no persistent cough.
- **Silent Infection Source** - It can lead to diagnostic delays and lead to continued transmission.
 - 29% of those without persistent cough & 23% without any cough are still smear-positive, indicating potential for transmission.

Subclinical TB: Hiding in plain sight

A TB prevalence survey was undertaken in Tamil Nadu from February 2021 to July 2022 in nearly 131,000 people aged over 15 years


Among the 244 TB cases detected, molecular test correctly detected 91.8% cases; smear microscopy detected only 50.4% cases	39% (94 people) of the TB cases detected had no TB symptoms, and would have been missed if chest X-ray was not used	All the 94 people with TB who were picked up based on chest X-ray abnormalities were bacteriologically positive
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Even as per the National TB Prevalence Survey Report (2019-2021), **42.6%** of the TB cases had no symptoms but were bacteriologically positive

Even if people do not have TB symptoms, bacillary loads can be high leading to transmission

In high-incidence settings, subclinical tuberculosis could contribute considerably to the TB burden and transmission

Respiratory droplets can be expelled during singing, talking, and tidal breathing, and not just coughing



What are the major challenges of Subclinical TB?

- **Vulnerability** - High-burden states in India are likely to have a significant prevalence of subclinical TB.
 - High-burden countries showing a median of 50% subclinical TB cases.
- **Asymptomatic nature**- It is difficult to identify and diagnose through routine screenings.
- **Delayed diagnosis**- It leads to longer diagnostic delays, allowing the disease to progress and increasing the risk of transmission.
- **Detection gaps**- Traditional diagnostic methods, like sputum tests and symptom-based screening, may miss subclinical cases, especially in areas with limited healthcare resources.
- **Scaling challenges**- Implementing widespread chest X-ray screening requires mobile units and regular community screenings.

India's goal is to increase molecular testing from 30% to 100% within 12 months to improve TB diagnosis and reduce morbidity and mortality.

- **Underreporting**- For every TB case notified, there are potentially two undetected cases with culture-positive TB, leading to slow progress in reducing TB incidence.
- **Patient compliance**- Convincing asymptomatic individuals to begin and complete a

six-month treatment regimen is challenging, with higher dropout rates despite potentially better outcomes.

- Incomplete treatment may lead to higher risks of drug resistance and treatment failure.

What lies ahead?

- Implementing AI-based chest X-ray screening to detect TB more efficiently.
- Ensuring consistent drug supply and scaling up human resources.
- Implement active case-finding initiatives using mobile vans, computer-aided radiology, and rapid molecular tests.
- Update the definition of TB-suggestive symptoms to include a broader range of indicators (e.g., any cough, weight loss, night sweats) to improve early detection.
- Educate communities about the risks of subclinical TB and the importance of early detection and treatment.
- Utilize digital adherence tools to ensure patients with subclinical TB complete their treatment regimens.
- Conduct more research to develop and validate shorter, more effective treatment regimens specifically tailored for subclinical TB cases.

Vietnam has successfully reduced TB prevalence by 50% in some areas through symptom-agnostic screening (X-rays and molecular tests) of the entire population annually.

References

1. [The Hindu | Subclinical TB](#)
2. [The Lancet | Subclinical TB](#)

