

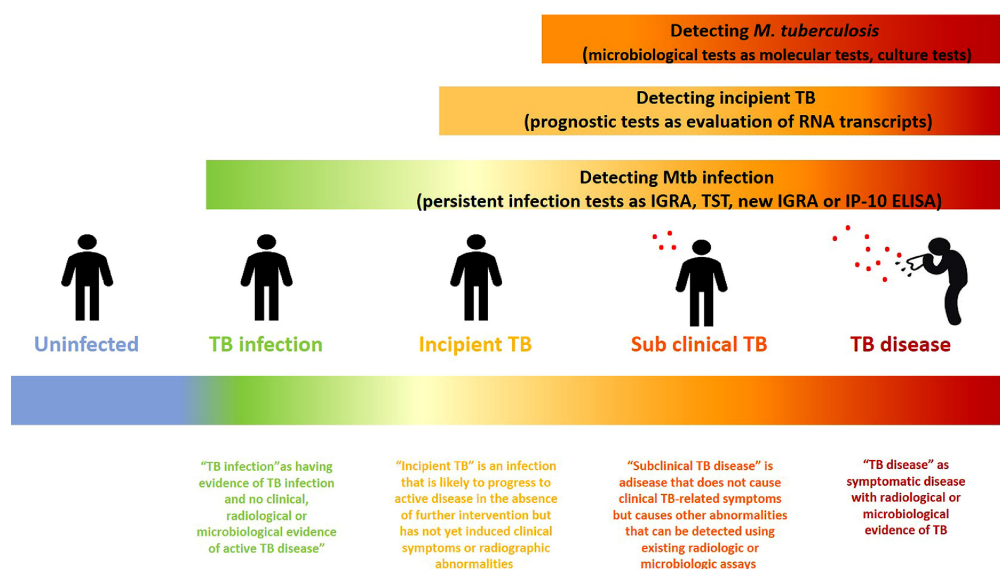
## Subclinical TB

### 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 <b>244 TB</b> cases detected, molecular test correctly detected <b>91.8%</b> cases; smear microscopy detected only <b>50.4%</b> cases	<b>39%</b> (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 <b>94 people</b> 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](#)

