

Diagnosis of Latent Tuberculosis Infection (LTBI)

LTBI is the presence of latent or dormant infection with *Mycobacterium tuberculosis* with no evidence of clinically active disease. The immunocompetent host generally has a lifetime risk of infection progressing to active disease (reactivation) in the range of 10%. Subjects deemed to have LTBI are by definition **non-infectious**. Depending on their contact history, age, chest radiographic findings, and associated medical conditions, they may be candidates for preventative treatment. **It is important to consider treatment of LTBI to eliminate the seed pool of infection in a population.**

Table 6.1: Latent TB Infection vs. Active Respiratory TB Disease

TB Infection (LTBI)	Active TB Disease (pulmonary)
CXR usually normal	CXR usually abnormal
Sputum smears and cultures negative	Sputum smears and/or cultures usually positive
No symptoms of disease	Symptoms such as cough, fever, weight loss
Not infectious	Often infectious before treatment
Infected with TB germ (LTBI) BUT not an active case of TB	An active case of TB

Guidelines for Use: TST or IGRA

- **Neither TST nor IGRA should be used for testing people who have a low risk of infection and a low risk that there will be progression to active TB disease if they are infected.** Only those who would benefit from treatment should be tested, so a decision to test presupposes a decision to treat if the test is positive.
- This means that screening for LTBI in people or groups who are healthy and at low risk of active disease development is discouraged, since the positive predictive value of TST or IGRA is low and the risks of treatment will often outweigh the potential benefits. TB screening programs should be focused on identifying those at risk for developing TB.
- Moreover, screening for LTBI should be undertaken only when there is an a priori commitment to treatment or monitoring should test results be positive.
- However, it commonly occurs that low-risk individuals are tested before exposure, when repeat testing is likely. In this situation TST is recommended; if the TST is positive then an IGRA may be ordered in consultation with OCPHO or Internal Medicine to confirm a positive result to enhance specificity.
- Neither TST nor IGRA should be used for active TB diagnosis in adults or children. A negative TST or IGRA does not rule out active TB at any age and especially not in young children.
- Neither TST nor IGRA should be used for routine or mass screening for LTBI of all immigrants (adults and children).

- In a person who has received BCG as a vaccine after infancy (1 year of age) or has received more than one BCG vaccination, IGRA is preferred.
- In those who have historically poor rates of return for TST readings; IGRA may be preferred.
- The TST is recommended whenever it is planned to repeat the test later to assess risk of new infection (i.e. conversions), such as repeat testing in a contact investigation or serial testing of health care or other populations (e.g. corrections staff or prison inmates) with potential for ongoing exposure. In this scenario, a two-step TST is performed (see **Section 4, TB Screening**).

Tuberculin Skin Test (TST)

The most commonly used tool for diagnosing LTBI is the TST. Testing for LTBI is indicated when there is a risk of an individual developing active TB disease, particularly for the following individuals:

1. Recent exposure to TB (highest risk is within 2 years of exposure)
2. Medical conditions or weakened immunity (i.e. HIV, cancer, etc.)
See **Table 2.3, Section 2**
3. Radiological evidence of an old healed inactive TB lesion but no prior treatment given

TST technique is described in **Section 4, TB Screening**.

Chest Radiography

Although chest radiography is not used for diagnosing LTBI, if it has been done previously for other clinical purposes it can provide clues to previous TB infection.

If a patient has a TST reaction size >5mm, the following signs on the CXR are indicative of previous TB infection (i.e. LTBI):

- Granulomas that are or are not calcified hilar nodes
- Costophrenic angle blunting

See CXR examples in the following figures.