

Tuberculin Skin Test (TST): Quick Reference Guide

Administering TST

1. Locate the injection site:

- With the forearm palm side up select an area about 10 cm below the elbow that is free of local rash, burns, tattoos, scars, broken skin or visible veins. If neither forearm is suitable, use the outside of the forearm or upper arm.
- Clean the site with alcohol and allow it to dry.
- Do not use local anesthetic cream (e.g., EMLA® cream) as application of this cream has been reported to cause localized edema, which could be confused with a positive TST result.

2. Prepare the tuberculin [Tubersol® 5 tuberculin units (5-TU) of purified protein derivative (PPD)]:

- Check the tuberculin expiration date and the date it was opened to ensure PPD has not expired; once opened discard after 1 month.
- Using a 1 mL safety-engineered tuberculin syringe with a ¼ - ½ inch, 26 or 27 gauge needle, withdraw using aseptic technique; ensure 0.1mL (5 tuberculin units) remains in the syringe.
- Draw up PPD just before injecting it. **Do not preload syringes** for later use as the plastic of the syringe diminishes the potency of the PPD.

3. Inject the tuberculin:

- While holding the skin taut, insert the needle with the bevel up just below the skin's surface at a 5° - 15° angle. The tip of the needle will be visible just below the skin; insert until entire bevel is covered.
- Inject the tuberculin by slow intradermal injection.
- Dispose syringe into a puncture-proof container.

4. Check the injection site:

- Look for a pale elevation in the skin (wheal) that is 6 to 10 mm in diameter. If no wheal appears, repeat the injection on the opposite forearm or at least 5 cm away from the previous injection site.
- Instruct the patient not to scratch the site and do not cover it with a bandage. A drop of blood is normal, may dab site lightly with gauze; do not use force as PPD will be squeezed from the site.



5. Document the test:

- Record the date and time of test, tuberculin lot number, expiration date, dose of PPD, the site of injection and the person administering the TST.

Monitor the client for at least 15 minutes post injection for an allergic reaction. Instruct them to return in 48-72 hours to have the test read.

Reading a TST

Reading of the TST should be performed by a trained health professional 48 to 72 hours after injection; avoid self-reading. If this 'window' is missed, the TST will need to be re-administered.

1. Inspect and palpate the site:

- Under good lighting, inspect the TST site for any induration (hard, dense, raised formation).
- With your finger tip, determine if any induration is present.

2. Mark the border for induration:

- Mark the edges of induration by moving the tip of a pen at a 45 degree angle laterally toward the site of the injection from opposite sides. The tip will stop at the edge of induration, if present.



3. Measure the induration:

- Using a caliper ruler, measure the distance between the pen marks; this provides a more precise reading.
- Measure induration – **NOT erythema/redness.**

4. Record the induration in millimeters (mm):

- Record date read; any adverse reaction (e.g. blistering), name of individual reading the test
- Results should be recorded in mm of induration. If there is no induration, record as 0 mm.

Contraindications

The following persons should not receive a TST:

- Documented positive TST or history of treatment for active TB disease or latent TB infection (LTBI).
- History of severe blistering reaction to previous TST.
- Extensive burns or eczema over testing sites.
- Patients with current major viral infections or live-virus vaccinations in the past month e.g. MMR, Varivax, yellow fever etc.

Storage of tuberculin – Tubersol® (5-TU)

- Store Tubersol® in the refrigerator between 2°C and 8°C – do not freeze. Discard if frozen.
- Store and transport in the dark; avoid exposure to light to ensure potency and accuracy of test.
- Record on vial, the date the vial is opened; discard 30 days after opening. **See over →**

Interpretation of TST result and cut-points in various risk groups

TST result	Situation in which reaction is considered positive*
0-4 mm	- In general considered negative; no treatment - Child under 5 years of age and high risk of TB infection
≥ 5 mm	- HIV infection - Contact with infectious TB case within the past 2 years - Presence of fibronodular disease on chest x-ray (healed TB, and not previously treated) - Organ transplantation (related to immune suppressant therapy) - TNF-alpha inhibitors - Other immunosuppressive drugs, e.g. corticosteroids (equivalent of ≥15 mg/day of prednisone for 1 month or more; risk of disease increases with higher doses and longer duration) - End-stage renal disease
≥ 10 mm	All others, including the following situations: - TST conversion (within 2 years) - Diabetes, malnutrition (<90% ideal body weight), cigarette smoking, daily alcohol consumption (>3 drinks/day) - Silicosis - Hematologic malignancies (leukemia, lymphoma) and certain carcinomas (e.g. head & neck)

*The goal of testing for LTBI is to identify individuals who are at increased risk for the development of tuberculosis and therefore would benefit from treatment of LTBI.

Bacille Calmette-Guérin (BCG) vaccination considerations

BCG vaccination can be ignored as a cause of a positive TST if:

- BCG vaccine was given in infancy (< 12 months of age), and the person tested is now aged 10 years or older.
- There is a high probability of TB infection: close contacts of an infectious case, Aboriginal Canadians from a high-risk community, or immigrants/visitors from a country with high TB incidence.
- There is a high risk of progression from TB infection to active TB disease.

What to do following a positive TST

If the tuberculin skin test is **positive**, the client should be evaluated further to rule out active TB disease:

- Medical evaluation of risk factors for TB and presence of symptoms
- Chest radiography
- In presence of symptoms, test sputum for acid fast bacilli smear and culture.

Two-step TST

- A single TST may elicit little response yet stimulate an anamnestic immune response. A 2-step test will stimulate the immune response, and a positive reaction may occur when a person is retested 1 week to 1 year later. This response is called the booster effect.
- A 2-step skin test assists in establishing a true baseline result for people who will be getting serial skin tests.
- If a baseline is not measured through 2-step skin testing, a positive skin reaction on subsequent tests may be interpreted as a conversion (i.e. TB infection), when in fact the positive skin reaction may represent an old infection.
- The 2-step TST needs to be performed only ONCE if properly performed and documented. Subsequent TSTs can be a 1-step, regardless of how long it has been since the last TST.
- The second test should be performed 1 to 4 weeks after the first test; materials and technique of administration and reading are the same.
- 2-step TSTs should be done for persons who:
 - may require subsequent testing (e.g. health care/correctional workers)
 - are becoming residents in a long-term care home / retirement home / group home
 - are traveling to a TB endemic country

How to do a 2-step TST

1. Administer and read the initial tuberculin skin test.
2. If result of the first TST is **positive**, a second TST **should not** be administered.
3. If the first TST is not considered positive, administer a second TST 1-4 weeks later.
4. Document both TST results in mm of induration.

Skin testing contacts of an active TB case

- TB contacts are identified by Public Health and provided with documentation for further follow-up from their physicians.
- Skin tests for contacts of active TB cases are covered by OHIP.

Hamilton Public Health Services

TB general inquiries.....905-546-2063
TB reporting fax.....905-546-4078

Charlton TB Clinic905-522-1155 x 34198

On line TST/IGRA Interpreter:

[TST/IGRA interpreter](#)

Canadian TB Standards:

[Canadian TB Standards](#)



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