

**Model Standing Orders for Tuberculin Skin Testing  
Current as of January 2017**

*All standing orders should be reviewed with respect to the most recent recommendations prior to signing them. These orders may be revised by the clinician signing the order (initial revisions).*

**Tuberculin Skin Testing**

Testing for tuberculosis (TB) infection is indicated for persons or groups at risk for tuberculosis infection or disease at a level in excess of the general population, and who would benefit from treatment of latent tuberculosis infection (LTBI), if detected. Persons with increased risk for developing TB disease include those who are recently infected with *Mycobacterium tuberculosis* and those who have clinical conditions associated with increased risk for progression of LTBI to active TB disease.

The Mantoux tuberculin skin test (TST) is a standard method of identifying persons with LTBI. An interferon-gamma release assay (IGRA) may be substituted for a TST in some cases; guidance for the use of IGRA is provided in a separate document. Multi-puncture tests (*e.g.*, tine test) are not recommended and should not be used.

**Order for Tuberculin Skin Testing:**

**Administer the Mantoux tuberculin skin test by intracutaneous (intra-dermal) injection of one-tenth milliliter (0.1 ml) of standardized purified protein derivative (PPD-S) antigen, which contains 5 tuberculin units (TU), into the volar surface of the forearm, two to four inches below the elbow.**

Alternate sites, such as the thigh, upper back or shoulders may be used when the arms are not suitable.

The injection is administered using a single-dose disposable tuberculin syringe that has a one-quarter to one-half inch, 25 to 27-gauge needle with a short bevel.

Administer the intradermal injection by stretching taut the selected area of skin between the thumb and forefinger; inject at a 5 to 15 degree angle, needle bevel facing upward, just under the top (superficial) layer of skin. ***A tense, pale wheal 6 to 10 mm in diameter should appear over the needle bevel as the 0.1ml of PPD solution is injected. If a wheal is not obtained, repeat the procedure in another area.***

**Document, in writing, the PPD reagent used for the test and the location of administration.**

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1. **EDUCATION**

- a. Discuss why the skin test is being done.
- b. Discuss what is involved in the procedure. Remind the patient to not scratch the test site.
- c. Indicate when the patient should return for the skin test to be read. Explain that the patient must return within 48-72 hours after the test is administered to have the test read; the test **cannot** be read by a non-trained person.

2. **ACTUAL TESTING**

- a. Test everyone on the same arm to avoid confusion.
- b. Do not prefill syringes more than 30 minutes before administering the test.
- c. Do not place an adhesive bandage over the site of the skin test after administration.

3. **CONTRAINDICATION**

- a. Do not skin test if individual has a previously documented positive reaction, unless that reading is in question.
- b. Do not skin test if individual has a previously documented history of bacteriologically-confirmed tuberculosis.
- c. Do not skin test if individual has had a live virus vaccine (MMR, varicella, yellow fever, etc.) within the last 6-8 weeks. Skin test can be administered on same day as live virus vaccine or administered 6-8 weeks after, or the live virus vaccine may be administered on the day the skin test is read.
- d. Do not skin test if the individual has a history of immediate hypersensitivity or anaphylaxis to latex or a previous TB skin test.

4. **INDICATIONS FOR SKIN TESTING:**

Targeted tuberculin testing programs should be conducted only among groups at high risk and discouraged in those at low risk for TB infection. Testing low risk populations results in a higher proportion of false positive tests. Infected persons who are considered to be at high risk for developing active TB should be encouraged to receive treatment for LTBI, irrespective of age.

5. **INTERPRETATION:**

- a. Patients should not read their own skin test; the test **MUST** be read and recorded by a trained provider.
- b. Read tuberculin skin test 48-72 hours after administration.
- c. Person verifying the reading should visually inspect the test site.
- d. Keep the arm slightly flexed at the elbow and measure induration (swelling, not erythema) across the transverse diameter of the arm (perpendicular to the long axis). The basis of reading the skin test is the presence or absence of induration, which is a hard, dense, raised swelling. Erythema is to be ignored; only induration should be measured.

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- e. Palpate the site with your fingertips to determine if there is induration; it may be helpful to mark the margins of the induration with a pen.
- f. Use a millimeter ruler or a caliper designed for TST reading to measure the diameter of the induration; if the margins of induration are irregular, mark and measure the longest diameter across the forearm.
- g. Record reactions as millimeters (mm) of induration (no matter what size, including “0 mm”).
- h. Positive tests:
  - Persons who have HIV infection, or are receiving immunosuppressive therapy, or have had recent close contact with persons with infectious TB, or have abnormal chest radiographs consistent with prior TB are considered **positive at 5 mm of induration**.
  - Immigrants from high prevalence countries or travel to a high prevalence country; injection drug users; residents and employees of high-risk congregate settings (including health care workers with potential for exposure to TB); mycobacteriology laboratory personnel; persons with clinical conditions such as: silicosis, diabetes mellitus, chronic renal failure, leukemia and lymphoma, carcinoma of the head, neck and lung, weight loss of > 10% ideal body weight, gastrectomy and jejunioileal bypass; children younger than 4 years of age; and children and adolescents exposed to adults in high-risk categories are considered **positive at 10 mm of induration**.
  - For low risk persons who have had tuberculin skin testing, a reaction is considered **positive at 15mm induration**.

Tuberculin skin tests should always be reported as mm of induration measured.

i. Skin Test “Conversion”:

For individuals whose previous reaction was a documented negative, an increase in reaction size of 10mm or more in induration within a period of 2 (two) years is considered a skin test conversion and the individual is considered recently infected with *Mycobacterium tuberculosis*.

6. **ADVERSE REACTIONS**

- a. Reactions in some instances may be severe; advise individual (beforehand) to:
  - Not scratch reaction.
  - Apply ice to any itchy or severely inflamed area.
- b. Unusual reactions, such as ulceration, should be evaluated by a physician or at a clinic.

7. **EVALUATION:**

Refer positive reactors to a TB clinic or to their own health care provider for a chest X-ray and further clinical evaluation to rule out active TB and evaluate for treatment of LTBI, as indicated.

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**8. DOCUMENTATION:**

Write and date the exact measurement in millimeters of induration on the patient’s record. Provide the patient with a copy of the results.

**9. STORAGE AND HANDLING OF PPD REAGENT:**

- a. When you open a new vial of purified protein derivative (PPD-S) of tuberculin skin test reagent, write the date and your initials on the label to indicate when the vial was opened and who opened it.
- b. A vial should be discarded 30 days after opening because oxidation and degradation may reduce potency.
- c. To avoid reduced potency of the tuberculin skin test reagent, store it inside a refrigerator so that it remains between 35 and 46 degrees Fahrenheit (2 and 8 degrees Celsius).
- d. Store and transport the tuberculin skin test reagent in the dark as much as possible and avoid exposure to light.

**10. REPORTING**

Cases of latent tuberculosis infection, as determined by skin test or other test for determining the presence of tuberculosis infection, are reportable in Massachusetts to the Massachusetts Department of Public Health (105 CMR 300.180 (A)) in a written or electronic format, as designated by the Department. When available, name, date of birth, age, sex, race/ethnicity, address, place of employment, and school (as applicable) must be included in each report. The LTBI reporting form (with instructions) is available at: <http://www.mass.gov/eohhs/docs/dph/cdc/reporting/case-report-forms/latent-tb-infection-crf.pdf>.

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