

# Tuberculin Skin Testing (TST) Protocol for Screening Health Care Workers

1. **CONDITION FOR PROTOCOL:** To detect infection with *Mycobacterium tuberculosis* in health care workers at time of hire, annually (if required), and following exposure (as indicated)
2. **POLICY OF PROTOCOL:** The nurse (RN or LPN) will implement this protocol for tuberculin skin testing (TST).
3. **CONDITION-SPECIFIC CRITERIA AND PRESCRIBED ACTIONS:**

**For persons adopting these protocols:** The criteria listed below include indications, contraindications, and precautions for implementing the TST protocol. However, the criteria must be reviewed and further delineated according to the licensed prescriber's parameters. Additional criteria and prescribed actions may be necessary. The prescribed actions are examples and may not suit your agency's clinical situation and do not include all possible actions. A licensed prescriber must review the criteria and actions and determine the appropriate action to be prescribed. Annual review of this protocol is suggested.

The terms Mantoux, TB skin test, tuberculin skin test, and PPD are often used interchangeably. Mantoux refers to the technique for administering the test. Tuberculin (also called purified protein derivative or PPD) is the solution used to administer the test. The preferred term for the test is tuberculin skin test or TST.

	Criteria	Prescribed Action
Indication	Contact to an infectious case of TB	Administer TST.
	Pre-employment screening for healthcare workers and correctional facility staff	Administer two-step TST.
	Pregnant/lactating women at high risk for TB	Administer TST. Pregnancy and lactation are not contraindications for TSTs. If woman declines TST, arrange for her to have a TB blood test (i.e., QuantiFERON, T-Spot).
	BCG-vaccinated persons	Administer TST. Prior BCG vaccination is not a contraindication for TST.
Contra-indication	Previous severe adverse reaction to tuberculin or any of its components	Do not administer TST. Arrange for employee to have a TB blood test (i.e., QuantiFERON, T-Spot).
	Documented previous positive TST or TB blood test	Do not administer TST. Repeat testing yields no meaningful information.
	Documented history of previous active TB disease or latent TB infection	Do not administer TST. Repeat testing yields no meaningful information.
Precaution	Immunization with a live-virus vaccine within past 6 weeks	Defer TST until 4 - 6 weeks after immunization with live-virus vaccine.
	Suspected active TB disease (based on signs, symptoms, and risk factors)	Administer TST and refer for immediate medical evaluation. A negative TST result does <b>not</b> rule out active TB disease.

**PRESCRIPTION:**

0.1 mL of 5TU tuberculin (Tubersol® or Aplisol®) intradermally (ID) using a ¼ to ½ inch 27-gauge needle.

**SUPPLIES:**

A vial of tuberculin, a single-dose disposable tuberculin syringe, a ruler with millimeter (mm) measurements, 2x2 gauze pads or cottonballs, alcohol swabs, a puncture resistant sharps disposal container, record-keeping forms for the employee and provider, and a pen.

**ADMINISTRATION:**

- Choose a site free of lesions, excess hair, and veins. The usual site for injection is the volar aspect of the forearm.
- Clean injection site with an alcohol swab. Allow area to air dry completely before the injection.
- Intradermally inject all of the tuberculin using a ¼ to ½ inch 27-gauge needle with a short bevel. This will produce a 6-10 mm wheal. If a wheal of 6-10 mm is not produced, another test should be done immediately at a site at least 2 inches from the original site.
- Use a cotton ball to dab the area lightly and to wipe off any drops of blood. Do not apply pressure or use a bandage on the test site. Instruct employee to avoid scratching the test site.
- Document:
  - Name and signature of person administering test
  - Date and time test administered
  - Location of test (e.g., right forearm, left forearm, alternate site)
  - Tuberculin manufacturer, lot number and expiration date
- Provide written reminder to employee to return for reading in 48 to 72 hours.

**READING:**

- Confirm that TST was applied within 48 to 72 hours prior to reading.
  - If < 48 hours, employee must return after 48 hours and before 72 hours.
  - If employee returns up to 7 days after the test was administered and the size of induration meets the criteria for a positive result, the result can be accepted. If reading the TST after 72 hours and there is no induration or the size of the induration does not meet the criteria for a positive result, the TST must be repeated.
- Use a millimeter ruler to measure the diameter of induration perpendicular to the long axis of the arm.
- Categorize results using table below.
- Document:
  - Name and signature of person reading test
  - Date and time test read
  - Exact number of mm of induration (if no induration, document "0" mm)
  - Interpretation of reading (i.e., positive or negative, based on individual's risk factors)
- Caution: Persons with symptoms of active TB disease or who are HIV infected or severely immunocompromised may have a false negative TST.

**TWO-STEP TST:**

If the first TST is negative, administer a second TST 7 – 21 days later, following the above protocol.

**FOLLOW-UP OF EMPLOYEES WITH A NEWLY-POSITIVE TST:** Refer persons with a newly identified positive TST to a provider within \_\_\_\_\_ days for a physical examination and chest x-ray to rule out active TB disease. Employees should not be allowed to work until the chest x-ray and physical examination are completed and active pulmonary TB disease has been ruled out.

**Table: Classification of TST results**

Category of Person Tested	Tuberculin Skin Test (TST) Result (induration)			
	< 5 mm	≥ 5 mm	≥ 10 mm	≥ 15 mm
Recent contact of infectious TB case	Negative	Positive	Positive	Positive
HIV-infected	Negative	Positive	Positive	Positive
Immunosuppressed or organ transplant recipient	Negative	Positive	Positive	Positive
Fibrotic changes or scarring on chest x-ray	Negative	Positive	Positive	Positive
Foreign-born from (or extensive travel to) high-prevalence country <sup>1</sup>	Negative	Negative	Positive	Positive
Injection drug user	Negative	Negative	Positive	Positive
Resident/employee of high-risk congregate setting or health care worker <sup>2</sup>	Negative	Negative	Positive	Positive
Mycobacteria lab personnel <sup>2</sup>	Negative	Negative	Positive	Positive
High-risk clinical conditions <sup>3</sup>	Negative	Negative	Positive	Positive
Child < 4 years of age	Negative	Negative	Positive	Positive
Child or adolescent exposed to high-risk adults	Negative	Negative	Positive	Positive
No risk factors (TB screening discouraged)	Negative	Negative	Negative	Positive

<sup>1</sup> BCG vaccination is not a contraindication for TST; disregard BCG history when interpreting TST result.

<sup>2</sup> In instances of repeated testing (other than contacts), an increase in TST result of ≥ 10 mm within 2 years is considered a TST conversion indicative of recent infection.

<sup>3</sup> Substance abuse, diabetes mellitus, silicosis, cancer of the head or neck, hematologic or reticuloendothelial disease such as Hodgkin's disease or leukemia, end stage renal disease, intestinal bypass or gastrectomy, chronic malabsorption syndromes, low body weight (i.e., 10% or more below ideal for the given population).

**4. MEDICAL EMERGENCY OR ANAPHYLAXIS:** *[Depending on clinic staffing, include one of the two options below.]*

In the event of a medical emergency (described below) related to the administration of a TST, RN will apply protocols as described in \_\_\_\_\_.

In the event of an onset of symptoms of anaphylaxis including:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

LPN or unlicensed assistive personnel (UAP) will immediately contact the RN for the RN to determine the need for further intervention or the use of other protocols such as \_\_\_\_\_.

**5. QUESTIONS OR CONCERNS:**

In the event of questions or concerns, call Dr. \_\_\_\_\_ at \_\_\_\_\_.

This protocol shall remain in effect for all employees of \_\_\_\_\_ until rescinded or until \_\_\_\_\_.

Name of prescriber: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Document reviewed & updated: \_\_\_\_\_