TUBERCULOSIS (TB) SCREENING AND TESTING

Background: TB is a communicable disease caused by *Mycobacterium tuberculosis*, or the tubercle bacillus. It is spread primarily by tiny airborne particles (droplet nuclei) expelled by a person who has infectious TB. If another person inhales air containing these droplet nuclei, transmission may occur. Although the majority of TB cases are pulmonary, TB can occur in almost any anatomical site. TB can cause disability and/or death if not detected and treated appropriately.

Targeted High-Risk Groups for TB Screening:

- Close contacts of persons with active TB
- Foreign- born persons from areas where TB is common
- Residents and workers in high-risk congregate settings
- Health care workers who serve high-risk clients
- Medically under-served, low-income populations
- Persons with certain medical conditions, such as HIV infection, diabetes, cancer, etc.
- Children exposed to adults in high-risk categories
- Persons who inject illicit drugs
- High-risk racial or ethnic minority populations defined locally as having an increased prevalence of TB

Signs and Symptoms of TB:

Pulmonary symptoms	**Systemic symptoms**	
Productive, prolonged cough (≥ 3 weeks)	Fever	Loss of appetite
Chest pain	Chills	Weight loss
Hemoptysis	Night sweats	Becomes easily fatigued

Other symptoms may occur depending on the part of the body affected.

Standard TB Skin Testing Method: Mantoux (intradermal). Multiple puncture tests such as "Tine" are not recommended. Health care workers trained to perform this test should administer TB skin tests.

PPD testing has no effect on the response to MMR vaccination. If tuberculin skin testing is needed at the same time as administration of measles-containing vaccine, PPD and vaccine can be administered at the same visit. If measles-containing vaccine has been administered recently, PPD screening should be delayed at least 4 weeks after vaccination.

Reading TB Skin Test Results:
A trained health care worker should read the reaction to the Mantoux test 48 to 72 hours after the injection. Patients should never be allowed to read their own tuberculin skin test results. If a patient fails to show up for the scheduled reading, a positive reaction may still be measurable up to 1 week after testing. However, if a patient who fails to return within 72 hours has a negative test, tuberculin testing should be repeated.

Classifying the Tuberculin Reaction
Interpretation of a positive tuberculin skin test (TST) has been somewhat controversial in Michigan. Many providers are currently using the 10mm cut off as a determinate of a positive TST in individuals without risk factors. The Michigan Department of Community Health TB Program along with the Michigan Advisory Committee for the Elimination of TB (MIACET) have recently issued recommendations based on the Centers for Disease Control and Prevention (CDC) recommendations which are as follows:

≥ 5mm is classified as positive in:

- HIV-positive persons
- Recent contacts of a TB case
- Persons with fibrotic changes on chest x-ray consistent with old healed TB
- Patients with organ transplants and other immunosuppressed patients

≥10 mm is classified as positive in:

- Recent arrivals from high-prevalence countries
- Injection drug users
- Residents and employees of high risk congregate settings
- Mycobacteriology laboratory personnel
- Persons with clinical conditions that place them at high risk
- Children < 4 years of age, or children and adolescents exposed to adults in high-risk categories

≥15 mm is classified as positive in persons with no known risk factors for TB

Skin Test Sensitivity:

It may take 2-10 weeks to develop a positive reaction after infection

Active TB Disease versus Latent TB Infection:
Persons who are infected with tuberculosis, but who do not have TB disease cannot spread the infection to other people. TB infection in a person who does not have TB disease is not considered a case of TB and is often referred to as having latent TB infection (LTBI). In some people, the TB bacilli overcome the defenses of the immune system and begin to multiply, resulting in the progression from TB infection to TB disease. This process may occur soon after or many years after infection. In the United States, unless they are treated, approximately 5% of persons who have been infected with tuberculosis will develop TB disease in the first year or two after infection and another 5% will develop disease sometime later in life.

Reporting Requirements:
Any suspected or confirmed case of TB disease should be reported by their physician within 24 hours of diagnosis to the local health department. Laboratories are also required to report. Individuals with positive TB skin tests who are not infectious (latent TB infection) are not required to be reported.

Laboratory Services Available from Michigan Department of Community Health (these tests are available at no cost):
- sputum smears and/or culture
- drug susceptibilities are performed on all TB specimens
- direct amplification testing

Reminders:
- Persons with a history of a positive reaction to TB skin testing should not be re-tested. Persons with positive TB skin test results should have a chest x-ray as part of the initial evaluation of their tuberculosis skin test, if negative, repeat chest x-rays are not needed unless symptoms develop that could be attributed to TB. Persons with a history of positive TB skin testing who develop signs and symptoms suggestive of TB should undergo a medical evaluation including a chest x-ray.
- Pregnant women should be targeted for tuberculin skin testing only if they have a specific risk factor for latent TB infection or for progression of LTBI to disease.
- Tuberculin skin testing is not contraindicated for BCG vaccinated persons.

Resources Available from your Local Health Department:
- TB medication for county residents
- Medical assessment and treatment
- Consultation/advice
- TB skin test training may be available

Recommendations for TB Screening of Health Care Workers
- New employees with a history of negative skin tests:
  - Complete two-step testing
- New employee with a history of a positive TB skin test:
  - Complete a TB health questionnaire
  - Obtain a chest x-ray if a current (within 6 months) one is not available

- The employer shall offer tuberculin skin tests (TST) or blood assay *M. tuberculosis* (BAMT) annually to employees/health-care workers in settings where risk assessment has determined that employees/heath-care workers will or will possibly be exposed to persons with TB disease or to clinical specimens that might contain *M. tuberculosis*.
- Established employee working in a facility with potential ongoing transmission, offer test every eight to ten weeks until the cause of transmission has been corrected and no additional evidence of ongoing transmission is apparent.
- Established employee with a history of positive test, complete annual health questionnaire (no annual chest x-ray)
- Employee with known exposure to TB, test immediately and again in eight to ten weeks.

Additional Resources:
- MDCH TB Control Program (517) 335-8165 or www.michigan.gov/tb
- www.michigantb.org
- www.cdc.gov/nchstp/tb/

Field Code Changed