

Policy TB 2013-001

Screening for TB Infection and Disease

Screening for tuberculosis (TB) infection and providing treatment to prevent progression to active disease are important in the ultimate elimination of tuberculosis. However, these strategies are lower priority than core control activities such as the identification and treatment of active cases, contact investigations, and disease surveillance. As our resources become more limited, it will become increasingly more important to direct any screening performed toward those populations where the yield and benefit are likely to be greatest.

The Virginia TB Control Program endorses only those screening programs that target specific high-risk populations and that include not only the initial evaluation for infection, but also a specific plan for assuring completion of preventive therapy. This policy, intended as a recommendation to the local health districts, has been developed in accordance with guidelines outlined by the Centers for Disease Control and Prevention in [Targeted Tuberculin Testing and Treatment of Latent Tuberculosis Infection \(MMWR 2000; 49 \(No. RR-6\)\)](#) . While some districts in the Commonwealth of Virginia are capable of carrying out screening on a broader scale, it is suggested that this policy as well as national guidelines be consulted in planning for new programs or reviewing old ones.

Types of Screening

Screening for TB disease

Screening for disease is appropriate in populations where the prevalence of active TB disease is high (e.g. homeless persons, migrant and seasonal workers, the foreign born). Screening for disease should begin with a clinical assessment for symptoms suggestive of tuberculosis. Those with TB-like symptoms should then undergo further evaluation, including sputum examination and/or chest radiography to either confirm or exclude the presence of disease. In some circumstances, screening with chest radiographs alone may be appropriate. However, this practice should be restricted to those settings where the risk of disease and of disease transmission are high and where a symptom evaluation is likely to be ineffective. It is suggested that this office be consulted before any radiographic screening program is initiated. Additionally, all persons with TB-like symptoms and sputum or radiographic examination suggestive of tuberculosis should be started on a standard, four-drug, anti-tuberculous regimen currently recommended by the American Thoracic Society/Centers for Disease Control and Prevention (ATS/CDC), pending final confirmation of the diagnosis.

Screening for TB infection (Latent TB Infection - LTBI)

There are currently two methods for detecting tuberculosis infection: The Mantoux tuberculin skin test (TST) and an Interferon Gamma Release Assay (IGRA) blood test.

Patients must be carefully assessed for risk factors PRIOR to administration of either test. This assessment may be carried out individually or for a population group (homeless persons, foreign born from high prevalence countries). The evaluation must also include some assessment as to the likelihood that treatment for LTBI will be completed if prescribed. Populations or individuals that will not or cannot complete treatment for LTBI should not, in general, be screened for infection. Patients who are candidates for screening should undergo a clinical assessment, including symptom review. Tuberculous disease must be excluded in patients in high-risk groups with TB-like symptoms, regardless of the results of the skin test or IGRA.

All tuberculin skin testing (TST) performed for the evaluation of tuberculous infection must utilize 5TU (0.1cc) PPD applied intradermally by the Mantoux method. Multiple puncture techniques (e.g. Tine testing) have insufficient sensitivity to be of value and their use, even in newborns and infants, should be abandoned. Current CDC/ATS guidelines for interpretation of the tuberculin skin test must be utilized. Once new tuberculous infection is identified, disease must be excluded with a chest radiograph.

An Interferon Gamma Release Assay (IGRA) is a blood test that can determine if a person has been infected with TB bacteria. An IGRA tests a person's blood in a laboratory to measure how the immune system reacts to the TB bacteria. Two IGRAs are approved by the U.S. Food and Drug Administration (FDA) and are available in the United States: QuantiFERON®-TB Gold in-Tube test and T-SPOT® TB test.

A positive TST or IGRA only means that TB infection is likely present in the body and additional testing is needed to determine if the person has active TB disease or latent TB infection (LTBI). The IGRA test is the preferred test for persons who have received the BCG vaccine and those who have a difficult time returning for a second appointment to read the TST test.

A recent chest radiograph (within 3 months) showing no evidence suggestive of tuberculosis disease is required before treatment for LTBI is initiated. Depending on clinical and radiographic characteristics, treatment for LTBI may then be offered. Patients on treatment

for LTBI must be followed monthly to assess for TB-like symptoms as well as symptoms of drug side effects and toxicity. Additionally, some groups require laboratory monitoring. All screening programs must include defined measures for ensuring and monitoring compliance and completion of the prescribed course of treatment. No specific follow up plan is required after completion of treatment for LTBI, although patients should be instructed to return for evaluation if TB-like symptoms develop. The practice of obtaining routine follow-up chest x-rays, including annual screening radiographs should be abandoned

Candidates for TB Screening

The following groups are at high risk of TB infection or progression to TB disease, once infected. Screening of groups other than those listed here is of low yield and diverts resources from high-priority activities. Such screening is not recommended and will not be endorsed or supported by the Division Disease Prevention, TB Control Program:

- close contacts of persons with known or suspected active tuberculosis disease
- persons infected with or at risk of being infected with HIV
- persons who inject illicit drugs or other locally identified high-risk substance users
- persons who have medical risk factors known to increase the risk for TB disease once infected
- residents and employees of high-risk congregate settings (e.g. correctional institutions, nursing homes, mental institutions, other long-term residential facilities)
- health care workers who serve high-risk groups
- foreign-born persons, including children, who have recently arrived (within 5 years) from countries that have a high TB incidence or prevalence (TB Control posts an exception list annually or timed with the World Health Organization's release of statistics detailing countries that are NOT high incidence or prevalence)
- infants, children, and adolescents exposed to adults in high-risk categories

Screening Among Specific Groups

Persons with HIV Infection

In persons with TB infection, co-infection with HIV is the most powerful risk factor for progression to active TB disease. Screening for TB infection and disease among those known to be infected with HIV should be considered a high priority. This screening should occur as soon after HIV infection is detected and should consist of a TST or IGRA test and detailed symptom review. All individuals with positive tuberculin skin tests or blood tests with TB-like symptoms must undergo a chest radiograph and/or sputum collection to exclude active TB disease. Those

with a positive TST or IGRA, but without symptoms or radiographic abnormalities should receive preventive therapy. There is no indication for preventive therapy in the absence of a positive skin test unless the individual is a close contact of a known case of TB disease.

Mobile risk groups (homeless persons, seasonal workers)

Screening among high-risk populations that are mobile or otherwise unlikely to complete a course of preventive therapy (homeless persons, migrant or seasonal workers) should focus on finding disease among all, infection and disease among contacts of active cases, and among the immunosuppressed. Screening for TB infection among asymptomatic, non-immunosuppressed members of these populations should be abandoned unless procedures are in place for assuring completion of therapy. If such procedures can be assured, screening for infection among young children (up to the age of 4 years) should take priority over screening in the population as a whole.

Students (preschool, daycare, primary/secondary schools, colleges and universities)

Studies have consistently shown the routine testing of all children for TB infection prior to school entry or advancement to be of low yield. This practice should be abandoned. Testing of selected groups of children may be justified if they fall into one of the risk categories outlined above. In addition, we do not advocate pre-matriculation testing of all college and university students for tuberculous infection. In this population, unless measures are in place to ensure and monitor compliance with preventive therapy, screening should focus on the identification of persons with TB disease. If screening for infection is to be done, we suggest risk assessment and symptom evaluation be done in order to identify subgroups of students in whom TST, IGRA or other evaluation is indicated.

Prenatal clinics

Pregnancy does not confer an added risk of tuberculosis infection. There is therefore no rationale for screening for TB infection in this population unless the individual belongs to one of the risk groups outlined above. Although tuberculin skin testing and IGRA blood testing are safe during pregnancy, preventive therapy is generally deferred until after the immediate post-partum period. We therefore recommend that in cases where screening for infection is indicated, it be deferred until after delivery so that the interval between diagnosis of infection and initiation preventive therapy can be minimized. This practice would eliminate the need for multiple radiographic examinations. Screening for disease with a symptom assessment is appropriate and those with TB-like symptoms should undergo further evaluation, including a tuberculin skin test

or IGRA blood test, chest radiograph, and sputum collection as indicated. Pregnant women with HIV infection or who are known to be close contacts of persons with TB disease should undergo TB skin testing or IGRA blood testing and, if indicated, receive preventive therapy without delay.

Occupational risk groups (health care workers, residents of congregate facilities)

Certain health care facilities, nursing homes and other congregate living settings are mandated by regulation to screen residents and employees for tuberculosis at entry. In situations where there is likely to be ongoing potential for exposure, an annual evaluation for TB infection or disease may be indicated as recommended by the Centers for Disease Control and Prevention in [Guidelines for Preventing the Transmission of *Mycobacterium tuberculosis* in Health-Care Settings](#) MMWR 2005; 54 (No. RR-17). The TB Program will continue to support such screening when carried out in accordance with published national guidelines.

Patients with a history of TB infection or disease (treated and cured)

There is no indication for routine follow-up chest radiographs in asymptomatic persons with a history of tuberculous infection or a prior history of tuberculosis disease that has been treated and cured. The practice of performing annual screening chest radiographs in those with a history of disease or prior infection should be abandoned. Persons in these categories who must undergo screening for employment or school entry should undergo a symptom assessment. Those with TB-like symptoms should be evaluated further with a chest radiograph and/or sputum collection. In order to satisfy screening regulations, it is suggested that the HCW performing the symptom assessment provide the employee/employer with a statement such as:

"The above named individual has a history of tuberculous infection (or tuberculous disease which has been treated and cured) and is currently free of symptoms suggestive of active tuberculosis. There is no indication for a chest x-ray at this time. This individual is believed to be free of tuberculosis in a communicable form."

Patients with a history of treated and cured MDR-TB represent important exceptions to this rule and may require a more thorough evaluation, including a chest radiograph, to document the absence of recurrence.