

On September 4, 2013, the Centers for Disease Control and Prevention (CDC) released recommendations for patient care and public health practice during the continued nationwide shortage of tuberculin skin test (TST) antigen solutions^[i].

During this period of TST antigen solutions shortage, the CDC recommends 3 general approaches:

- 1.) Substitute the interferon- γ release assay (IGRA) blood tests, (QuantiFERON-TB Gold In Tube[®] and TSpot TB[®]) blood tests for TSTs.
- 2.) Substitute APLISOL[®] for TUBERSOL[®] for skin testing if APLISOL[®] is available.
- 3.) Allocate TSTs to priority usages, such as tuberculosis (TB) contact investigations; priorities can be set in accordance to relative TB risks. A priority strategy might require deferment of testing.

Recommendations published by CDC in 2000 discourage routine TST screening for persons at low risk for TB^[ii].

American Indian and Alaska Native people continue to be at high risk for TB infection.

Despite continued decreases in incidence over the past decade, the incidence of TB disease remains seven times that of Non-Hispanic Whites^[iii].

Prior, routine TST screening programs in Indian Country identified many of those with latent TB infection (LTBI). Since 2000, targeted testing of those at high risk, such as persons with diabetes, has been performed in IHS and Tribal facilities. Yet, despite the fact that TB is more likely to progress among persons with diabetes and at a faster rate, many of those with diabetes either have not been tested or have not completed treatment for LTBI.

With the ongoing shortage of both TST antigen solutions, practitioners and institutions should continue to prioritize their use of existing stock and employ alternatives to TST screening for TB.

Alternatives to TST screening include the use of IGRA blood tests or deferring routine testing of those at low risk of having been exposed to TB.

Additionally, facilities and institutions are encouraged to review and modify public health rules, regulations, or policies governing TST screening, if needed.

The following information may be helpful to those facilities and institutions using a priority strategy approach based on relative TB risks.

The highest priority persons for testing include^[iv]:

- 1) persons who are contacts to infectious cases
- 2) persons being evaluated for suspected active TB
- 3) persons at increased risk for tuberculosis due to medical conditions*
- 4) persons recently arrived from high TB incidence countries

*Human immunodeficiency virus (HIV)-positive persons, fibrotic changes on chest radiograph consistent with prior TB, patients with organ transplants and other immunosuppressed patients (receiving the equivalent of ≥ 15 mg/d of prednisone for 1 month or more or TNF- α antagonist), diabetes mellitus, silicosis, head, neck, or lung cancer, hematologic or reticuloendothelial disease such as Hodgkin's disease or leukemia, end stage renal disease, intestinal bypass or gastrectomy, chronic malabsorption syndrome, low body weight (i.e., 10% or more below ideal for the given population)

A screening questionnaire to determine TB infection risk status is shown below.

This questionnaire can be used by clinical staff as well as program staff at schools, jails, residential treatment centers and other locations that have continued to require mandatory TST screening of employees, student or clients.

Screening to Identify individuals at High Risk for TB Infection or Disease ⁱⁱ	Yes	No
Prior history of a positive test for TB (PPD, IGRA, sputum, CXR)		
Recent close contact with someone with infectious TB disease		
Foreign-born from (or travel* to/in) a high-prevalence area (e.g., Africa, Asia, Eastern Europe, or Central or South America)		
Fibrotic changes on a prior chest x-ray suggesting inactive or past TB disease		
HIV/AIDS		
Organ transplant recipient		
Immunosuppressed (equivalent of > 15 mg/day of prednisone for >1 month or TNF- α antagonist)		
History of illicit drug use		
Resident, employee, or volunteer in a high-risk congregate setting (e.g., correctional facilities, nursing homes, homeless shelters, hospitals, and other health care facilities)		
Medical condition associated with increased risk of progressing to TB disease if infected [e.g., diabetes mellitus, silicosis, head, neck, or lung cancer, hematologic or reticuloendothelial disease such as Hodgkin's disease or leukemia, end stage renal disease, intestinal bypass or gastrectomy, chronic malabsorption syndrome, low body weight (i.e., 10% or more below ideal for the given population)]		

If a person answers yes to any of these questions, and is a candidate for treatment of LTBI, then he should be further screened with one of the available tuberculin skin tests or IGRA blood tests based on availability of the product or laboratory services, in accordance with current guidance.

For persons who do not meet any of the above criteria, further LTBI testing should be deferred until such time that adequate supplies of TST supplies are available.

It is important to remember that screening for symptoms of active TB disease should also be done for patients at high risk and before initiating medical therapy for LTBI.

The following symptom screening questionnaire can be used:

Signs and Symptoms of TB Disease:

Does the individual now have:	Yes	No
Cough lasting 3 weeks or longer?		
Coughing up blood?		
Chest pain?		
Night sweats (drenching)?		
Difficulty breathing?		
Hoarseness and/or trouble swallowing?		
Persistent fever and/or chills?		
Persistent fatigue?		
Persistent loss of appetite?		
Weight loss (without dieting)?		

A chest radiograph and other diagnostic assessment should be done as clinically indicated for anyone with a history of active TB or symptoms suggestive of TB. Chest radiographs should also be done on asymptomatic persons with past or current documented positive TST or IGRA tests, unless an earlier CXR report can be documented.

The matrix below provides an algorithm for evaluating individuals for LTBI or TB disease^[v]:

Signs or symptoms of TB Disease?	Documented previous positive PPD?	Documented negative PPD in past 12 months?	Yes answer to high risk screening questionnaire?	Action
Yes				Notify physician immediately
No	Yes			Educate about TB Recommend treatment for LTBI if not previously treated ^[vi]
No	No	Yes		Educate about TB
No	No	No	Yes	Educate about TB Screen for LTBI with PPD or IGRA
No	No	No	No	Educate about TB Defer LTBI screening at this time

References:

^[i] CDC Health Alert Network #355. Available at: <http://emergency.cdc.gov/HAN/han00355.asp>

^[ii] Targeted tuberculin testing and treatment of latent tuberculosis infection. *MMWR* 2000;49(RR-6). Available at: <http://www.cdc.gov/mmwr/PDF/rr/rr4906.pdf>

^[iii] CDC. *Reported Tuberculosis in the United States, 2011*. Available at: <http://www.cdc.gov/tb/statistics/reports/2011/default.htm>

^[iv] NY State DOH Bureau of TB Control, Update to 3/25/2013 Health Advisory: Shortage of Purified Protein Derivative (PPD) for Tuberculin Skin Testing available at: <http://www2.monroecounty.gov/files/health/NYSDOH%20Guidance%20on%20PPD%20Shortage%204-15-13.pdf>

^[v] Adapted from State of Tennessee Department of Mental Health and Substance Abuse Services, Division of Substance Abuse Services Tuberculosis (TB) Symptom Screening Tool available at: http://tn.gov/mental/A&D/TB_training/TB_SymptomScreeningTool.pdf

^[vi] CDC. *MMWR*, December 9, 2011 / 60(48);1650-1653. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6048a3.htm>