



Philadelphia TB Newsletter

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Tuberculosis Control Program
500 S. Broad Street, 2nd Floor
Philadelphia, PA 19146

Michael Nutter
Mayor

Camille Barnett
Managing Director

Donald Schwarz MD, MPH
Deputy Mayor, Health and
Opportunity

Nan Fyler
Chief of Staff

Caroline Johnson, MD
Director of Disease Control

David Schlossberg, MD, FACP
TB Program Medical Director

Barry Dickman, MPA
TB Program Director

The Philadelphia TB Newsletter is a quarterly publication that is intended to be a resource for clinicians, infection control personnel, and laboratories who diagnose, treat, and/or report tuberculosis (TB) in Philadelphia. It provides treatment updates and recommendations, reviews local and national TB epidemiology, and presents case studies.

Contributing to this issue:

Daniel Dohony, MPH
CDC Senior Public Health
Advisor

David Schlossberg, MD
TB Program Medical Director

Irimi Daskalaki, MD
Pediatric TB Consultant

Christina Dogbey, MPH
TB Epidemiologist
Editor

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Infectious Tuberculosis – Isolation and Hospital Discharge

David Schlossberg, MD, FACP
Medical Director, TB Control Program

Hospitalized patients with proven or suspected tuberculosis should be isolated in Airborne Isolation (AII) Rooms, formerly called negative pressure rooms. AII rooms should be single-patient rooms with negative pressure, to minimize transmission of infectious agents by droplet nuclei.

While hospitalized, patients with suspected TB disease should remain in isolation under airborne precautions until they are not infectious. This requires them to satisfy three criteria:

- 1) two weeks of appropriate therapy
- 2) clinical improvement
- 3) three consecutive negative sputum smears.

The sputum smears should be collected 8–24 hours apart, with at least one specimen collected early in the morning (secretions pool overnight). This process can be accomplished in 2 days.

If the initial smears were negative, 5–7 days of therapy is considered adequate, instead of 2 weeks. If the patient has proven or suspected MDR-TB, three negative cultures – not smears – should be documented before

determining a patient to be noninfectious.

In addition to these clinical and microbiologic criteria, all close contacts of the patient should be identified, evaluated, and begun on therapy as indicated, either for TB disease or latent TB. This is especially important for close contacts who are children younger than 4 years and those of any age who are immunocompromised. Hospitalized patients with suspected TB may be released from airborne precautions if the diagnosis of TB is no longer considered likely AND either

- 1) an alternative diagnosis is made that explains the patient’s illness or
- 2) the patient has 3 negative sputum smears.

The above criteria for determining infectiousness should be used to decide when patients can be released from isolation in the hospital. However, patients may be discharged from the hospital while they are still infectious (to their home, not to a congregate setting) and placed on Home Isolation. This requires satisfying the following criteria:

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Guidance for Primary Health Care Providers: Treatment of Latent Tuberculosis Infection

Daniel Dohony, MPH

David Schlossberg, MD & Irini Daskalaki, MD

Latent tuberculosis infection (LTBI) is infection with *Mycobacterium tuberculosis* organisms without signs or symptoms of disease. Without treatment, approximately 5–10% of persons with LTBI will progress to tuberculosis (TB) disease at some point in their lifetime. Identifying and treating those at highest risk for TB disease helps prevent future cases of the disease. Primary care providers play a key role in controlling TB because of their access to high-risk populations.

Only patients in the risk group categories listed in Table 1 should be tested for LTBI; therefore, **a decision to test is a decision to treat if the test is positive.**

If patients without risk factors are tested, their PPD is considered positive only if it is 15 mm or greater. Note that the reaction size is considered positive or negative according to which risk group the patient is in. Special priority should be given to children under the age of five, immunosuppressed patients (especially HIV-positive patients) and contacts of multi-drug resistant TB. If Quantiferon TB Gold is used, the manufacturer's directions should be followed in interpreting results.

Treatment of latent TB infection (LTBI) should be initiated after the possibility of TB disease has been excluded. There are three treatment regimens for the treatment of LTBI using isoniazid (INH) or rifampin (RIF) (see Table 2 on page 3). INH for 9 months is the preferred regimen. Treatment must be modified if the patient is a contact of an individual with INH- or multi-drug-resistant TB. Consultation with a TB expert is advised when the index patient has multi-drug-resistant TB. Please call the TB control Program for consultation at the number listed on page 4.

For patients on therapy for latent TB, the Program recommends self-administered therapy for LTBI,

using fixed-dose pills as the standard of care for adults. Treatment of latent TB infection is best done on a daily basis. Give the patient only a one-month supply of medication. A pillbox may be used to assist the patient in taking the medications correctly. If a pillbox is used, consult the pharmacist to ensure appropriate labeling of the box.

The use of twice-weekly directly observed preventive treatment of latent TB infection (DOPT) may be used for at-risk adults who cannot or will not reliably self-administer therapy and children whose risk for dissemination or progression of disease is high. The priorities for DOPT by TB Control are patients under five years of age and contacts to multi-drug resistant TB cases as outlined below. (Only the INH regimens can be given on a bi-weekly basis).

Educate Patient

Provide appropriate written instructions and oral education to the patient regarding the medication and follow-up in a culturally and linguistically competent manner. Reinforce education at every encounter with the patient.

Clinical Monitoring and Evaluation

- Evaluate the patient monthly in a face-to-face encounter for adherence to therapy and possible adverse reactions to the medications.
- Routine baseline and monthly laboratory monitoring (CBC, liver function tests) should be performed on all adult patients.
- Tell patient to discontinue medications and report the symptoms when there are indications of any adverse reactions.
- If the patient develops symptoms of active disease

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while on treatment, immediately refer the patient to TB Control for a medical evaluation. If the patient fails to keep monthly appointments, attempt contact by letter or phone.

Completion of therapy is based on total number of doses administered – not on duration of therapy alone. A six-month course should be completed within 9 months; a 9-month course should be completed within 12 months.

Directly Observed Therapy:

Directly observed therapy (DOT) by the TB Control Program depends on resources and clinical status of patient. The priorities for DOPT by the TB Control Program are patients under five years of age and contacts to multi-drug resistant TB cases.

Children who are Contacts of Persons with Potentially Contagious TB:

Children less than 5 years of age are at high risk for developing serious forms of TB once infected. Children who are contacts to persons with potentially contagious TB should be identified and evaluated immediately to rule out TB disease. This evaluation should include a TST, CXR and physical examination. If the child is less than 5 years of age, prophylactic treatment should be initiated as soon as disease is ruled out, even if the evaluation and TST are negative. This is critical due to the high risk of progression to TB disease if infected and because a positive TST can be delayed for up to 10-12 weeks after infection. If the

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Table 1: Classification of the Tuberculin Skin Test Reaction, by Risk Group	
An induration of 5 or more millimeters is considered positive in	An induration of 10 or more millimeters is considered positive in
<ul style="list-style-type: none"> HIV-infected persons A recent contact of a person with TB disease Persons with fibrotic changes on chest radiograph consistent with prior TB Patients with organ transplants Persons who are immunosuppressed for other reasons (e.g., taking the equivalent of >15 mg/day of prednisone for 1 month or longer, taking TNF-α antagonists) 	<ul style="list-style-type: none"> Recent immigrants (< 5 years) 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 < 5 years of age Infants, children, and adolescents exposed to adults in high-risk categories



Figure 1: Administering a tuberculin skin test on the volar surface of the arm. Source: CDC DTBE Website

Table 2: LTBI Treatment Regimens				
Drugs/Regimen	Adults mg/kg (maximum)	Children mg/kg (maximum)	Interval	Minimum # of doses for
Isoniazid/ 9 month	5 (300 mg)	10-20 (300 mg)	Daily	270
	15 (900 mg)	20-40 (900 mg)	Twice weekly	76
Isoniazid/ 6 month	5 (300 mg)	10-20 (300 mg)	Daily	180
	15 (900 mg)	20-40 (900 mg)	Twice weekly	52
Rifampin/4 month (for children <12 yrs, 6 mos of therapy)	10 (600 mg)	10-20 (600 mg)	Daily	120



Philadelphia Department of Public Health

Tuberculosis Control Program

500 S. Broad Street

Philadelphia, PA 19146

Phone: 215-685-6873 or 215-685-6744

Reporting

All TB cases and suspected cases must be reported to the TB Control Program within 24 hours of identification. To report a case or suspect, call 215-685-6873. Reports can also be faxed to 215-685-6477 or submitted through the Pennsylvania National Electronic Disease Surveillance System (PA-NEDSS). Reporting information is available on the TB Control website at www.phila.gov/health or can be obtained by calling 215-685-6873.

Infectious Tuberculosis (cont'd)

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- 1) follow-up plans should be in place through the Department of Public Health TB Control Program
- 2) The household contains no highly-susceptible contacts, e.g. children younger than 4 and immunocompromised persons.
- 3) Household contacts have been exposed and are in the process of being evaluated and treated.
- 4) The patient will remain in isolation at home, leaving ONLY for health-care related visits (during which times a surgical mask is worn). Patient may not visit public sites, use public transportation or have visitors. He/she should be instructed about coughing into tissues and discarding the tissues immediately, and the house should be as well-ventilated as possible.

The above criteria are general guidelines and may be individualized for specific patients or circumstances.

For specific recommendations, please call the TB Control Program of the Philadelphia Department of Public Health, 215-685-6873.

Treatment of Latent Tuberculosis Infection (cont'd)

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repeat TST is negative, treatment can be discontinued. If the repeat TST is positive, reevaluation of the child should take place and, if TB disease is once again ruled out, the child needs to complete the full 9 months of treatment for LTBI.

Source Case Investigation

The Tuberculosis Control Program conducts a source case investigation for all children less than 5 years of age found to have TB infection and who have not been identified as a contact to a known case of tuberculosis. The possible source patient is usually an adult in the home, or an adult with whom the child spends significant periods of time (e.g., friends, relatives, baby sitters, daycare personnel, etc.) Promptly evaluate for disease any possible source patient who has symptoms suggestive of tuberculosis, by obtaining a chest x-ray, collecting three consecutive sputum samples for AFB smear and culture (one of which should be an early-morning specimen), and administering a TST.

For questions or to request a consultation please contact TB Control at 215-685-6744. For additional information on TB and LTBI, visit the CDC website at: <http://www.cdc.gov/tb/>