Practice Guideline for Treatment of Latent Tuberculosis Infection in Children

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KEY WORDS
Guideline, treatment, latent, tuberculosis, children

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Conflicts of interest: None to report.

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J Pediatr Health Care. (2015) *29*, 302-307.

0891-5245/$36.00

Published online March 17, 2015.

http://dx.doi.org/10.1016/j.pedhc.2015.02.002

Latent tuberculosis infection (LTBI) treatment is an important component of tuberculosis (TB) management in the United States to prevent new cases of TB disease. The risk of progression from TB infection to active disease in healthy adults is 5% to 10%, whereas the risk of progression in patients younger than 1 year is approximately 50% (Cruz & Starke, 2007). Factors associated with higher risk of progression include age younger than 5 years, recent TB infection, diabetes mellitus, human immunodeficiency virus (HIV) infection, immunocompromised status, or administration of immunosuppressive medications (Pediatric Tuberculosis Collaborative Group, 2004).

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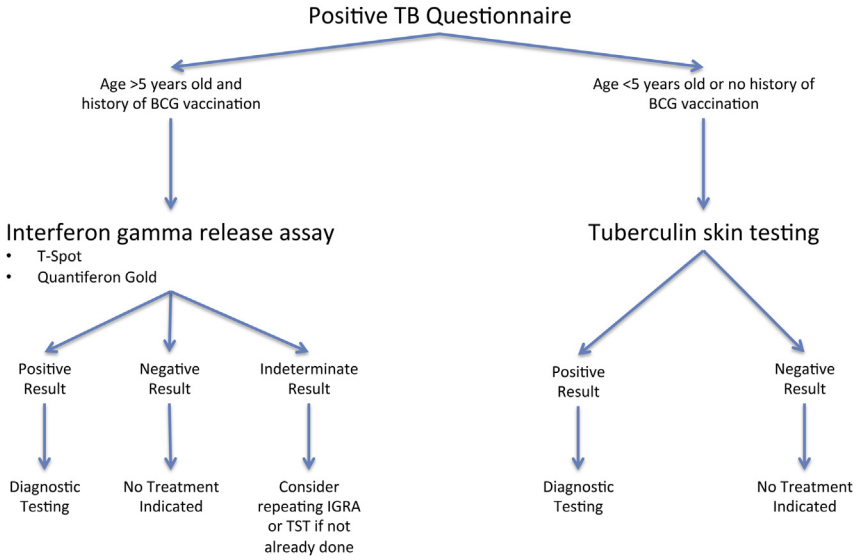
SCREENING

The 2014 American Academy of Pediatrics (AAP) recommendations for preventative pediatric health care suggest that a TB screening questionnaire be administered starting at 1 month, 6 months, and 12 months of age, then annually (Committee on Practice and Ambulatory Medicine, Bright Futures Periodicity Schedule Workgroup, 2014).

FIGURE 1. Tuberculosis diagnostic testing.



BCG = Bacille Calmette-Guérin; IGRA = interferon-gamma release assay; TB = tuberculosis; TST = tuberculin skin test. This figure appears in color online at www.jpedhc.org.

The TB Questionnaire

According to the Committee on Infectious Diseases, AAP (2012), the TB Questionnaire screens children for TB risk factors such as:

- History of birth or travel to countries/continents endemic with TB (e.g., Africa, Asia, the Caribbean, the Middle East, Mexico, Central and South America, and countries of the former Soviet Union)
- History of contact with:
  - Persons confirmed or suspected to have contagious TB
  - High-risk persons with a history of incarceration, homelessness, intravenous drug use, or HIV infection
  - Persons with symptoms of TB
  - Indigenous people from high-risk countries

In addition, TB testing is recommended for children with any of the following:

- Symptoms of TB including chronic cough, lymphadenopathy, fever, weight loss, or night sweats
- Chest radiograph or other laboratory findings suggestive of TB (especially pneumonia or hilar lymphadenopathy on a chest radiograph)
- HIV (children infected with HIV should have annual testing for TB)

TB DIAGNOSTIC TESTS

Children with a positive screening questionnaire should have one of the following tests:

- Tuberculin skin test (TST)
- Interferon-gamma release assays (IGRAs)
  - T-SPOT.*TB*
  - QuantiFERON-TB Gold In-Tube (QFT-GIT)

The choice of diagnostic test is based on the patient's age and history of Bacille Calmette-Guérin (BCG) vaccination (Figure 1).

Tuberculin Skin Test

- Not indicated for children without risk factors or symptoms of TB because of the low positive predictive value
- Induration should be measured and recorded in millimeters (mm) at 48-72 hours
- The criterion for positivity (> 5 mm, > 10 mm, or > 15 mm) depends on the patient's risk group (Box)
- A TST may be administered at the same time as other vaccines, including live vaccines
- Live vaccines may cause a false-negative TST result for up to 4-6 weeks after administration
- Prior BCG vaccination is not a contraindication to TST administration, although BCG may cause a false-positive result in some patients

WORKUP OF A POSITIVE TST OR IGRA TEST

A positive TST or IGRA indicates infection but cannot distinguish between LTBI and TB disease.

- Perform a thorough physical examination with attention to the pulmonary and lymphatic systems to exclude disease.
- Obtain a two-view chest radiograph to identify infiltrates, lymphadenopathy, cavitary lesions, and/or pleural effusions.

Normal findings of a chest radiograph and physical examination in a patient with no signs or symptoms excludes TB disease and confirms the diagnosis of LTBI.