

Tuberculosis Screening for Children and Adolescents in Various Settings

Purpose

The purpose of this document is to outline tuberculosis (TB) screening of children and adolescents in various settings. Although very young children are at high risk of developing TB disease if infected, not all children face equal risks of infection. This document outlines the settings and conditions that should prompt TB screening and testing with either an interferon-gamma release assay (IGRA) or a tuberculin skin test (TST). It also details special populations at greater risk for TB.

General TB Screening Recommendations

The Texas Department of State Health Services (DSHS) Tuberculosis and Hansen's Disease Unit (TB Unit) follows recommendations from the American Academy of Pediatrics in *Red Book: 2021-2024 Report of the Committee on Infectious Diseases — 32nd Ed. (2021)*. The TB Unit does not recommend universal testing with an IGRA or TST in settings such as schools, childcare centers and other congregate settings with populations at low risk of TB.

Instead, the TB Unit recommends using a TB questionnaire to first identify children and adolescents with TB risk factors. Identification of TB risk factors will determine who should have a TB test (the TST or IGRA).

Screening for TB Risk Factors

Healthcare providers should screen children and adolescents for TB risk factors with a risk-assessment questionnaire (see [DSHS TB Questionnaire for Children, \[English\] 12-11494](#) or [DSHS TB Questionnaire for Children \[Spanish\] 12-11494a](#)). A TB risk assessment questionnaire should ask about factors that increase child or adolescent risk for TB, including:

- Exposure to a person with known or suspected infectious TB. Symptoms of infectious TB can include:
 - cough lasting over two weeks with or without blood
 - prolonged fever
 - unexplained weight loss
 - night sweats
- Birth or recent travel for more than three weeks to areas of the world with high rates of TB. This includes most countries in Latin America, the Caribbean, Africa, Asia, Eastern Europe, and Russia. See [World Health Organization Global Tuberculosis Report](#) for country-specific details.

- Exposure to people with TB risk factors. This includes people who:
 - are homeless
 - have unstable housing
 - have HIV
 - use illicit drugs
 - were incarcerated or institutionalized
 - recently came to the United States from areas of the world with high rates of TB

Providers should base the decision to test with an IGRA or TST on a TB risk factor from the questionnaire, or a new risk factor from a following questionnaire. This decision is a commitment to ensure the child receives further, appropriate evaluation and treatment for TB infection if indicated.

Choosing the Appropriate Test for Screening

The TB Unit recommends the IGRA for children and adolescents two years and older with TB risk factors. Some medical experts recommend an IGRA in children younger than two years old on a case-by-case basis. Advantages of the IGRA are that it requires one appointment, produces results in 24 hours and removes subjectivity in interpreting results, as laboratories process the specimens. Providers may use TSTs for children younger than two years. TST is also acceptable for children older than two years when the IGRA is not feasible.

Performing an IGRA

The IGRA is a blood test performed by a professional trained in phlebotomy. The specimen is processed in a laboratory. Two Food and Drug Administration (FDA)-approved IGRAs are available for TB screening:

- QuantiFERON-TB Gold Plus
- T-SPOT.TB

The TB Unit does not recommend one IGRA over the other.

Administering and Reading a TST

Health care workers trained in TST administration must place the TST following the Mantoux method. Read the results by touching and measuring the indurated (hard) area within 48–72 hours of placement. Write test results in millimeters of induration rather than “positive” or “negative.” Do not rely on parents or other people to provide descriptions or measurements of test reactions. Do not administer a TST if the person has a history of severe, immediate reaction to the test.

Interpreting and Responding to TB Screening Test Results

When interpreting the TST or IGRA, consider the child or adolescent's age along with medical and social risk factors. TST interpretation guidelines are on the Centers for Disease Control and Prevention (CDC) [Tuberculin Skin Testing Fact Sheet](#). For the IGRA, do not use indeterminate or invalid results to make clinical decisions. Only a licensed health care provider can determine if repeat screening is necessary.

Children and adolescents with **positive IGRA or TST results** and risk factors for TB are likely infected. They will need further evaluation to determine if the infection is latent or active. The evaluation should include:

- TB signs and symptom assessment
- Chest radiography (frontal and lateral x-ray for pediatric clients)
- Evaluation from a clinician for further diagnostics when indicated

Asymptomatic children with positive IGRA or TST results and no clinical findings suggestive of active TB can participate in school or other group activities unless a physician recommends otherwise. The physician will base this decision on chest x-rays and other test results.

Children and adolescents with **negative IGRA or TST results** and no symptoms or known exposure to TB are unlikely to have TB infection.

Always refer children and adolescents with signs or symptoms of active TB disease for medical evaluation regardless of IGRA or TST test results.

Evaluating Children and Adolescents with a Previously Positive IGRA or TST, a History of Completed Therapy for TB Infection or Disease, or Both

Do not give a repeat test to people with a *documented* history of either or both:

- Previously positive IGRA or TST (written in millimeters)
- Previously completed therapy for TB infection or disease

Provide screening for symptoms of TB disease, a chest x-ray and clinical evaluation to children or adolescents with significant exposure to someone with TB disease.

For children and adolescents unable to provide documentation for TB screening and/or treatment, follow recommendations for test administration outlined in *Choosing the Appropriate Test for Screening*.

Reporting TB

Healthcare providers must report to the local or regional health department (L/RHD) TB Program when they suspect or identify TB disease or when they identify TB infection. Healthcare providers should also notify the L/RHD when electing to treat the child or adolescent for TB infection. See [How to Report Tuberculosis in Texas](#).

Tests of TB Infection and Vaccines

In many parts of the world where TB is common, providers use the [Bacille Calmette-Guérin, \(BCG\) vaccine](#) to protect infants and young children from serious, life-threatening diseases. The vaccine protects against miliary TB and TB meningitis. But it does not completely prevent TB. **Providers can test or treat a child or adolescent with a history of BCG vaccination for TB infection.**

The TB Unit recommends the IGRA in BCG-vaccinated children and adolescents age two years and older to avoid false-positive TST results due to the vaccine. If you cannot use an IGRA, place and interpret a TST as outlined in *Administering and Reading a TST* and *Interpreting and Responding to TB Screening Test Results*. A healthcare provider should interpret [TST reactions](#) based on risk stratification regardless of BCG vaccination history.

Testing for TB should not be delayed because of timing of a COVID-19 vaccine. Both the TST and the IGRA can be administered before, after, or during the same encounter as the COVID-19 vaccination. Visit the [CDC website](#) for any updates to TB screening practices in people vaccinated against COVID-19.

Other vaccines may impact TST or IGRA results due to temporary immune suppression, causing false-negative reactions. These are usually [live virus vaccines](#), such as measles-mumps-rubella (MMR). Providers should consult with the L/RHD TB program or a [DSHS-recognized TB medical consultant](#) before deciding to delay a TST or IGRA or repeat a confirmatory test after vaccination.

Special Settings, Populations and Situations where TB Screening is Recommended

Children and Adolescents with Symptoms of TB Disease

Children, especially young children, may have fewer common TB symptoms than adolescents and adults. Review signs and symptoms carefully. Refer to [The Spectrum of TB, from Infection to Disease, TB at a Glance, 3rd Ed.](#) for more information. Provide a full medical evaluation to children and adolescents with symptoms of TB disease, such as:

- Cough
- Fever
- Weight loss or poor weight gain
- Night sweats
- Chills

The evaluation should include:

- IGRA or TST

- Chest radiography (frontal and lateral x-ray for pediatric clients)
- Collection of sputum specimens or early morning gastric aspirates
- Physical examination

Negative tests from these diagnostics do not rule out the possibility of TB disease in a child or adolescent with symptoms and significant exposure. Report known or suspected TB to the L/RHD. See [How to Report Tuberculosis in Texas](#).

Contacts to People with TB Disease

Provide an IGRA or TST to children and adolescents with prolonged or frequent contact with people with confirmed or suspected infectious TB. Also provide a chest x-ray to children age four and younger. Provide a full medical examination as soon as possible to children or adolescents with x-rays or clinical findings suggesting TB disease.

Correctional Facilities

Screen children and adolescents for symptoms of TB disease. Provide an IGRA or TST on admission or readmission to a correctional or detention facility. Provide symptom screening yearly thereafter and an IGRA or TST if the first test is negative.

Licensed Child Care Facilities

Facilities with a permit or license from Texas Health and Human Services (Texas HHS) to provide care to children or adolescents will abide by the [Texas Administrative Code \(TAC\) Title 26, Part 1](#) and the chapters that apply to the type of facility. Refer to the [Texas HHS Minimum Standards for Child Care](#).

Foster Care

Because it is difficult to get valid information for a TB risk assessment questionnaire, provide an IGRA or TST to children and adolescents entering foster care at their first medical appointment after placement in foster care. Provide a full medical evaluation to children and adolescents with symptoms of TB disease or known exposure to a person with TB disease. The evaluation should include an IGRA or TST within 72 hours of entering foster care.

International Adoption

Provide a full medical evaluation with an IGRA (as the preferred test for TB infection) within 72 hours of arrival in the United States to children and adolescents with symptoms of TB disease being adopted from a foreign country. Because it is difficult to get valid information for a TB risk assessment questionnaire, provide an IGRA to children and adolescents adopted from a foreign country at their first medical appointment after arrival in the United States.

Because of the risk for a false-negative IGRA after recent exposure to infectious TB, or secondary to malnutrition, provide a repeat IGRA to internationally adopted children and adolescents 3–6 months after they arrive in the United States. If a child or

adolescent is adopted in a country where the BCG vaccine is not available, providers may use a TST if they cannot use the IGRA.

HIV or AIDS

Provide a yearly IGRA or TST (depending on age limitations, as noted in *Choosing the Appropriate Test for Screening*) to children and adolescents living with HIV or AIDS. Provide the test at ages 3–12 months if perinatally infected or at the time of HIV diagnosis in older children or adolescents. Provide a medical evaluation for treatment after a positive IGRA or TST. However, a negative TB test **does not exclude** the possibility of TB disease if the medical history, x-ray or clinical findings suggest TB.

Immunosuppressive Medications

Provide an IGRA or TST to children and adolescents before or when they start taking medications that suppress the immune system. Such drugs could increase the risk of progressing from TB infection to TB disease (e.g., steroids, chemotherapy, biological modifying agents such as tumor necrosis factor-alpha antagonists).

Medical Conditions

Provide an IGRA or TST to children and adolescents at higher risk of progressing from TB infection to TB disease due to medical conditions (e.g., diabetes, chronic renal failure, malnutrition, congenital or acquired immunodeficiencies) at the time of diagnosis or circumstance.

Organ Transplant Candidates

Provide an IGRA or TST to children and adolescents before starting immunosuppressive therapy. Such therapy could increase the risk of progressing from TB infection to TB disease. Provide a prompt medical evaluation after a positive IGRA or TST.

Texas Health Steps Participants

In most of Texas, the Texas Health Steps Program should evaluate each child and adolescent yearly for risk of TB exposure or infection using the Texas Health Steps TB Screening and Education Tool ([DSHS TB Questionnaire for Children, \[English\] 12-11494](#) or [DSHS TB Questionnaire for Children \[Spanish\] 12-11494a](#)). Provide an IGRA or TST to children and adolescents with one or more risk factors the first time they answer the questionnaire. If the first test is negative, repeat the IGRA or TST at following visits with a new occurrence of risk.

People Affected

These recommendations are relevant to staff responsible for TB screenings, such as:

- Health care providers
- Organizations that serve children and adolescents
- L/RHDs

Responsibilities

- Administrators, directors and managers responsible for day-to-day operations of settings that serve children and adolescents at risk for exposure to infectious TB should ensure their facility has procedures to prevent TB transmission. They are responsible for designating someone in their organization to report every case of TB infection and disease to the L/RHD.
- The L/RHD is responsible for:
 - Educating health care providers and administrators of organizations that serve children and adolescents about basic TB facts and screening this population for TB infection and disease;
 - Implementing TB prevention and care; and
 - Managing contact investigations for known exposures in their jurisdiction.

References

1. American Academy of Pediatrics. Tuberculosis. In: Kemberlin DW, Barnett ED, Lyfield R, Sawyer MH, eds. *Red Book: 2021 Report of the Committee on Infectious Disease*. Itasca, IL: American Academy of Pediatrics: 2021, page 786.
2. Clinical Infectious Diseases. (2016). *Official American Thoracic Society/Infectious Diseases Society of America/Centers for Disease Control and Prevention Clinical Practice Guidelines: Diagnosis of Tuberculosis in Adults and Children*. [cdc.gov/tb/publications/guidelines/pdf/cid_ciw694_full.pdf](https://www.cdc.gov/tb/publications/guidelines/pdf/cid_ciw694_full.pdf)
3. Heartland National Tuberculosis Center and Mayo Clinic. (2020). *The Spectrum of Tuberculosis from Infection to Disease, TB at a Glance, 3rd Ed*. heartlandntbc.org/assets/products/The_Spectrum_of_TB.pdf.

Definitions

BCG (Bacillus of Calmette and Guérin) Vaccine — Vaccine used in many countries with a high burden of TB to lessen development of serious forms of TB but does not prevent TB infection

Children and Adolescents — People age 18 years and younger

Congregate Setting — Setting in which a group of people live, meet or gather in close physical proximity, either for a short or long time. Examples include prisons, dormitories and homeless shelters.

IGRA — Interferon Gamma Release Assay; a TB blood test

TB Disease — Condition characterized by a combination of symptoms such as cough with or without blood, fever, night sweats, or swelling of lymph nodes; and/or chest x-ray findings suggestive of active TB disease. Results of the TST or IGRA can be positive or negative. People with TB disease can infect others.

TB Infection — Condition characterized by a positive IGRA or TST, the absence of any symptoms of TB disease and a chest x-ray not suggestive of TB disease. Their TB is dormant, is not presently causing illness, and they cannot infect others.

TB Screening — Comprehensive process that includes questions about TB symptoms and may include other diagnostic procedures, such as an IGRA or TST, a chest x-ray, physical examination, or collection of specimens for laboratory analysis

Test for TB Infection- The TST or IGRA

TST – Tuberculin Skin Test; a TB skin test