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| Tuberculosis Screening for Children in Various Settings | Policy Number | TB-1003 |
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1.0 Purpose

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

2.0 Policy

The policy of the Department of State Health Services (DSHS) is to ensure that only children with risk factors for tuberculosis are screened with the recommended screening test. All children with signs or symptoms of TB disease should receive a full medical evaluation.

DSHS concurs with recommendations from the American Academy of Pediatrics (AAP) published in *Red Book: Report of the Committee on Infectious Diseases, 31st edition, 2018*. It does not recommend universal testing with an IGRA or TST in settings including schools, child care centers, and other congregate settings with populations at low risk of TB. It does, however, recommend children and adolescents be screened for TB risk factors in health care settings, and be referred for testing when risks are identified.

Screening for TB Risk Factors

Primary care providers should screen children and adolescents for TB risk factors by using a risk-assessment questionnaire (TB Questionnaire, EF12-11494 available at dshs.texas.gov/idcu/disease/tb/forms/). The decision to test with an IGRA or TST should be based on identification of a TB risk factor on the initial questionnaire, or a new risk factor that is indicated on a subsequent questionnaire. This decision is also a commitment to ensure the child is further evaluated appropriately and, if indicated, provided treatment for TB infection. Providers must report to the local or regional health department TB Program when there is suspicion of TB disease and when TB infection is identified. A referral should also be made to the local or regional health department when the referring physician elects to have the child treated in a public health setting.

Choosing the Appropriate Test for Screening

Since 2013, IGRA has been the preferred screening test in Texas for children two years and older with TB risk factors. Some medical experts recommend an IGRA in children younger than two years of age. The IGRA is preferred in BCG vaccinated individuals to avoid false-positive TST results caused by the vaccination; however, in situations where an IGRA is not feasible, a TST may be used and results interpreted as outlined below. Neither the TST nor the IGRA is reliable in children less than three months old.

Placing and Interpreting the TST

A licensed or unlicensed health care worker trained in TST administration, reading and interpretation must place the TST by the Mantoux method and must read the results by touching and measuring the indurated area within 48-72 hours of its placement. Providers shall not rely on a parent or other individuals to provide a description and or measurement of the reaction to the test. A TST may be repeated immediately at least two inches away from the original site if the first test is administered incorrectly. If the patient does not return for reading within 48-72 hours, the TST may be repeated as soon as practical.

When interpreting the TST, consideration should be made regarding age along with medical and social risk factors of the child. Guidelines on interpreting the TST can be found on the Centers for Disease Control and Prevention's (CDC) website at: cdc.gov/tb/publications/factsheets/testing/skintesting.htm. Test results must be written in millimeters of induration, and not simply "positive" or "negative."

Repeat TSTs should be avoided if there is a history of a severe, immediate reaction to the TST. Such individuals should be screened with an IGRA if risk factors for TB are present.

Administering and Interpreting IGRAs

The IGRA is a blood test that is administered by a professional trained in phlebotomy. Currently there are two FDA-approved IGRAs available for use in the United States: the QuantIFERON-TB Gold Plus and the T-SPOT.TB. DSHS does not recommend one IGRA over the other. Advantages of the IGRA are that it requires only one appointment for administration, results can be available in 24 hours, and it takes out the subjectivity of reading a TST result, as blood specimens are processed in a laboratory setting.

Children with a positive result from an IGRA should be considered infected with *M. tuberculosis* and need further evaluation to determine if the infection is latent or active. This evaluation includes a signs and symptoms assessment, a chest radiography, and evaluation from a clinician for further diagnostics when indicated. A child with a negative test result in the absence of symptoms or known exposure to TB is considered unlikely to be infected with TB. Indeterminate or invalid results should be repeated as determined by the licensed healthcare provider.

Asymptomatic children whose test results are positive on an IGRA or TST should not be excluded from school or other group activities unless a physician indicates further evaluation is necessary based on the chest radiography and other test results.

Evaluation of Children with Previously Positive IGRA or TST Results

Children with a documented history of a previously positive IGRA or TST result or documentation of having completed therapy for TB infection or disease, should not be given a repeat test; they should be screened for symptoms of TB disease and receive chest radiography if they have a subsequent significant exposure to someone with TB disease.

If a child or adolescent has a history of a previously positive TST without written documentation of the millimeters of induration, an IGRA should be administered. If the IGRA is not feasible, a TST may be placed with results documented in millimeters.

2.1 Special Situations:

2.1.1 TB Disease – Children and adolescents with symptoms of TB disease should receive a full medical evaluation including an IGRA or TST, chest radiograph, and collection of sputum specimens or early morning gastric aspirates. Note: negative test results from any of the above diagnostics do not rule out the possibility of TB disease in a child in the presence of symptoms and significant exposure.

2.1.2 Contacts to Individuals with TB Disease: Children and adolescents with prolonged or frequent contact to persons with confirmed or suspected infectious TB should receive an IGRA or TST. Children less than 5 years of age should also receive a diagnostic chest radiography. Children or adolescents with radiographic or clinical findings suggesting TB disease should receive a full medical examination as soon as possible.

2.1.3 Correctional Facilities – Children and adolescents should be screened for symptoms of TB disease and receive an IGRA or TST on admission or readmission to a correctional or detention facility. They should receive a TB screening with an IGRA or TST and symptom screening annually thereafter if their first test result is negative.

2.1.4 Foster Care – Because of the difficulty of obtaining valid information for a TB risk assessment questionnaire, children entering foster care should receive an IGRA or TST at their first medical appointment after placement in foster care. However, children entering foster care who have symptoms of TB disease or known exposure to a person with TB disease should receive a full medical evaluation including an IGRA or TST within 72 hours.

2.1.5 BCG (Bacillus of Calmette and Guérin) – A history of BCG immunization is not a contraindication to administering a TST or performing an IGRA. However, the IGRA is the preferred test for BCG vaccinated individuals, as the TST may show a false-positive result due to the vaccine.

2.1.6 Internationally Adopted Children – Children being adopted from a foreign country who have symptoms of TB disease should receive a full medical evaluation including an IGRA as the preferred test of TB infection within 72 hours of arrival in the United States. Because of the difficulty of obtaining valid information for a TB risk assessment questionnaire, children adopted from a foreign country should

receive an IGRA at their first medical appointment after coming to the United States. In addition, because of the risk for a false-negative IGRA after recent exposure to infectious TB, or secondary to malnutrition, a repeat IGRA should be administered 3 to 6 months after internationally adopted children arrive in the United States. If a child is adopted in a country where the BCG vaccine is not administered, a TST may be acceptable for the screening test if IGRA is not feasible or in children younger than 2 years.

2.1.7 HIV/AIDS - Children and adolescents living with HIV/AIDS should receive an annual IGRA or TST beginning at age 3-12 months, or at the age of diagnosis. A medical evaluation for treatment should follow a positive IGRA or TST result. However, a negative test of TB infection does not exclude the possibility of TB disease in the presence of information from the child's medical history, or in clinical or radiographic findings suggestive of TB.

2.1.8 Immunosuppressive Medications – An IGRA or TST should be administered to children and adolescents before or at the same time as starting immunosuppressive medications that could increase their risk of progressing from TB infection to TB disease (e.g., steroids, chemotherapy, biological modifying agents such as tumor necrosis factor α antagonists).

2.1.9 Medical Conditions – Children at increased risk of progression from TB infection to TB disease due to medical condition (e.g., diabetes, chronic renal failure, malnutrition, congenital or acquired immunodeficiencies) should receive an IGRA or TST at the time of diagnosis or circumstance.

2.2.0 Organ Transplant Candidates - An IGRA or TST should be administered to children and adolescents before initiation of immunosuppressive therapy that could increase their risk of progressing from TB infection to TB disease. A prompt medical evaluation for treatment should follow a positive IGRA or TST result.

2.2.1 Live Virus Vaccines – An IGRA or TST can be administered at the same time as live virus vaccines (e.g., measles, varicella). If not administered at the same time, wait 4 to 6 weeks to administer the test.

2.2.3 Texas Health Steps Participants – In most of Texas, each child should be evaluated annually for risk of TB exposure or infection using the Texas Health Steps TB Screening and Education Tool (TB Questionnaire EF12-11494). The first time the questionnaire is answered, children with one or more risk factors should receive an IGRA or TST. At subsequent visits, a new occurrence of risk should result in a repeat IGRA or TST if the first test was negative.

3.0 Definitions

BCG (Bacillus of Calmette and Guérin) vaccine – a vaccine given in many countries with a high burden of tuberculosis that may lessen the development of serious forms of tuberculosis but does not prevent latent TB infection.

Children and adolescents – persons from birth to 18 years of age.

Latent tuberculosis infection – a condition characterized by a positive reaction to an IGRA or TST, the absence of any symptoms of TB disease, and chest radiography that is not suggestive of TB disease.

IGRA – an Interferon Gamma Release Assay; a TB blood test.

TST – a tuberculin skin test; an intradermal screening test for TB.

Test of TB Infection – either the TST or an IGRA.

4.0 Persons Affected

Health care providers, organizations that serve children, local and regional health department TB programs.

5.0 Responsibilities

- Administrators, directors, or managers responsible for day-to-day operations of settings that serve children at risk for exposure to infectious TB shall ensure that their facility has procedures in place to prevent the transmission of *Mycobacterium tuberculosis*. They shall be responsible for designating someone in their organization to report all occurrences of TB infection (also referred to as latent TB or LTBI) or TB disease to the local or regional health department.
- Local and regional health departments shall educate health care providers and administrators of organizations that serve children about basic TB facts and appropriate measures for screening children for TB infection or TB disease. They shall be the primary organization responsible for implementation of this policy. Where a known exposure has occurred, the local or regional health department shall be the lead agency to manage the contact investigation.

6.0 Procedures

For procedures on administering, reading, and interpreting a tuberculin skin test by the Mantoux method, see *Tuberculosis Tuberculin Skin Testing (TST) Services Provided by Authorized Staff* at dshs.texas.gov/idcu/disease/tb/policies/#sdo.

7.0 Revision History

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