

Tuberculosis Screening and International Adoption

When adopting a child from a country outside the United States, screening for tuberculosis (TB) is important in protecting the health of the child and, depending on the child's age, people with whom the child interacts.



1. What is TB and how is it spread?

Tuberculosis (TB) is a disease caused by the bacteria *Mycobacterium tuberculosis* and is spread from person to person through the air. TB bacteria get into the air when a person with TB disease in the lungs or throat coughs, speaks, or sings. These bacteria can stay in the air for several hours, depending on the environment. TB usually affects the lungs, but it can also affect other parts of the body, such as the brain, kidneys, or spine. TB is among the top 10 causes of death in the world. TB is the leading cause of death among people with known HIV infection and is one of the most common infections in people with weakened immune systems. A patient with latent tuberculosis infection (LTBI) is infected with *M. tuberculosis* but does not have active TB. Active TB can be contagious, while LTBI is not. It is not possible to get TB from someone with LTBI.

2. Can children who have TB spread TB to others?

Young children who have TB can spread TB to others, although the chance of that happening is much less likely than it is for older children, adolescents, or adults who have TB. Doctors are particularly concerned about children possibly spreading TB if the child has an abnormal chest X-ray, a forceful productive cough, or known exposure to a person with multidrug-resistant or extensively drug-resistant TB.

3. What kind of medical exam does a child need to obtain an immigrant visa to enter the United States?

As required by the US Immigration and Nationality Act (INA), any child or adult who is applying for an immigrant visa to enter the United States needs an overseas medical exam, which includes testing for TB. This medical exam must be conducted by a **panel physician (a doctor who has an agreement with a local US embassy or consulate to perform immigrant screening exams)**. Factors that affect the choice of TB tests for children include:

- Their age
- If they have 1) a known HIV infection **or** 2) signs or symptoms of TB **or** 3) a history of TB disease

4. What does each TB test involve?

Tuberculin Skin Test (TST) or Interferon Gamma Release Assay (IGRA)

A TST is routinely performed in children 2–14 years of age who are examined in countries where the TB disease rate is 20 or more cases per 100,000 population. It is also required for any child younger than 15 years of age with known HIV infection or signs or symptoms of TB disease, or children with a history of TB. A TST is performed by a healthcare worker, who injects a small amount of fluid (called tuberculin) just under the top layer of the skin of the forearm. After 48–72 hours, the child returns to the healthcare worker, who looks for a raised, hard area or swelling at the injection site. A raised area measuring 10 millimeters or more is a positive TST result.

An IGRA is a blood test that can be conducted instead of a TST, for the same reasons as a TST, to detect and measure an immune response to TB bacteria. Results are usually available within 1 week.

Chest X-ray (CXR)

If the child has a positive TST or IGRA, known HIV infection, signs or symptoms of TB, or a previous history of TB disease, the child is required to have their lungs X-rayed. Results of a chest X-ray are generally available within 2–3 days. If the child has a previous history of TB only, smears and cultures are not needed unless the chest X-ray is suggestive of TB.

Sputum Sample

Sputum samples are needed if the child's chest X-ray suggests TB disease or the child has known HIV infection or TB signs or symptoms. Under the direct observation of a healthcare provider, three samples of the child's sputum (mucus that is coughed up) are collected and tested for TB bacteria. If a child is unable to cough up enough sputum for testing, sputum induction (sputum is loosened and thinned using a mild salt mist) or early morning gastric aspirate methods can be used. In early morning gastric aspiration, a tube is passed through the child's nose to the child's stomach to collect lung mucus that the child has swallowed; this method can be helpful if a child is too young to follow directions to cough.

Sputum Smears and Cultures

To determine whether the child has active TB disease, the sputum sample is examined for TB bacteria under a microscope (sputum smear). Results of the sputum smear are generally available 1 day after the third sputum collection. Another part of the sputum sample is placed in nutrients and monitored in the TB lab for 8 weeks (sputum culture). If the child has active TB disease, the bacteria should grow in this sputum culture and be visible within 2–8 weeks, which means a positive diagnosis for TB disease (*continued on other side*).



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Because TB bacteria often grow slowly, a full 8 weeks must pass to allow the bacteria to grow. If no bacteria have grown by the end of 8 weeks, and there are no signs or symptoms of active TB, the child does not have TB disease.

Drug Susceptibility Testing

If the child has a positive sputum culture, a drug susceptibility test determines which medications can kill the TB bacteria. Based on the results of this test, the child will be given the TB medications that are most effective against their TB. Results are typically available in 2–4 weeks.

5. Why are sputum smears and cultures required for children younger than 15 years of age with HIV regardless of their TST (or IGRA) and CXR results?

TB is the leading cause of death among people with known HIV infection and one of the most common infections for people with weakened immune systems. Additionally, HIV infection is the most common risk factor that can cause latent (inactive) TB infection to become active TB. Without treatment, TB can be fatal. Therefore, it is especially important for people with known HIV infection to be tested for TB. Because HIV infection weakens a person's immune system, and some TB tests reflect immune response to the TB bacteria, people with known HIV infection and TB may:

- Test negative on the tuberculin skin test (TST) or the interferon gamma release assay (IGRA), the chest X-ray, and sputum smears, BUT
- Test positive on sputum culture.

6. What laboratory results or other findings mean that a child has TB?

If a child's sputum cultures and smears test positive for TB, the panel physician should make a diagnosis of active TB. If a child has signs or symptoms of active TB (regardless of laboratory tests), the panel physician may determine that having the child start treatment is the best course of action. In either situation, TB treatment must begin overseas.

7. If a child is diagnosed with TB, what is the treatment, and how long does it take to complete?

TB is treated with a combination of antibiotics determined by the child's strain of TB. If the child is receiving medication to treat TB, a healthcare worker or other trained person will watch the child swallow each dose of medication. This treatment is called directly observed therapy (DOT) and is the standard care. DOT typically takes at least 6 months to complete. The panel physician can compare findings on the first chest X-ray with those on a chest X-ray taken during treatment as an indicator of whether the medication the child is taking is effectively curing the TB disease.

8. Are the TB screening requirements for any child or adult who is applying for an immigrant visa to enter the United States new?

CDC Technical Instructions have required TB screening for decades. The Technical Instructions for Tuberculosis Screening and Treatment using Cultures and Directly Observed Therapy (DOT), the most stringent TB Technical Instructions thus far, were introduced in 2007 and gradually implemented across the globe. As of October 1, 2013, these Technical Instructions are being used by panel physicians in all countries that screen immigrants and refugees coming to the United States. The required tests and procedures of these Technical

Instructions give the panel physician the ability to make more accurate TB diagnoses and to identify appropriate medication treatment to help prevent drug-resistant TB.

9. Prior to adoption, a child available for adoption visited the United States with a hosting program and was not required to have TB testing. Why must the child now undergo testing before being cleared for travel to the United States?

Children participating in hosting programs usually visit the United States on tourist visas. Under the INA, people applying for a tourist visa are not required to have a medical examination. However, people becoming permanent US residents, such as an adoptive child, must have an immigrant visa, which requires a medical exam, which includes testing for TB.

10. After parents arrive in the country of adoption, do they have to wait until after the adoption paperwork is finalized to begin the TB testing process?

Parents may not have to wait. In many countries, CDC has worked with adoption agencies, US Consular Sections, and panel physicians to have children evaluated by a panel physician before the adoption process is complete.

11. Sometimes children with TB are granted a waiver to travel to the United States before their TB treatment is complete. What does this waiver process involve, and who qualifies for this waiver?

People who have TB and are applying to come to the United States as immigrants are required to complete their TB treatment before traveling to the United States. However, for people with TB whose medical situations suggest that they would benefit from receiving their TB treatment in the United States, the Department of Homeland Security's US Citizenship and Immigration Services (USCIS) may grant a Class A waiver allowing them to travel to the United States before the end of their TB treatment. Additional information can be found at <http://www.cdc.gov/immigrantrefugeehealth/exams/adoptees-tuberculosis-screening-faq.html>.

For more information about CDC's role in international adoption, please visit <https://www.cdc.gov/immigrantrefugeehealth/adoption/index.html> or e-mail CDC-INFO at <https://wwwn.cdc.gov/dcs/ContactUs/Form>.

