

Connecticut Tuberculosis (TB) Risk Assessment

See *the Connecticut TB Risk Assessment User Guide* for more information about using this tool.

- Use this tool to identify asymptomatic **adults and children** for latent TB infection (LTBI) testing.
- This tool can be used for school-aged children to determine if a student should have a TB test.
- This risk assessment does not supersede any TB testing mandated by statute, regulation or policy.
- **Do not repeat testing** unless there are **new risk factors** since the last test.
If initial negative screening test occurred prior to 6 months of age, repeat testing should occur at age 6 months or older.
- Do not treat for LTBI until active TB disease has been excluded:
For persons with TB symptoms or an abnormal chest x-ray, evaluate for active TB disease with a chest x-ray, symptom screen, and if indicated, sputum acid-fast bacilli (AFB) smears, cultures and nucleic acid amplification testing (NAAT). A negative tuberculin skin test (TST) or interferon gamma release assay (IGRA) does not rule out active TB disease.

LTBI testing is recommended if any of the boxes below are checked.

Birth, travel, or residence for at least 1 month in a country with an elevated TB rate

- Includes any country other than the United States, Canada, Australia, New Zealand, or a country in western or northern Europe
- If resources require prioritization within this group, prioritize patients with at least one medical risk for progression (see the Connecticut Tuberculosis Risk Assessment User Guide for this list).
- IGRA is preferred over TST for non-U.S.-born persons ≥2 years old

Immunosuppression, current or planned

- HIV infection, organ transplant recipient, treated with TNF-alpha antagonist (e.g., infliximab, etanercept, others), steroids (equivalent of prednisone ≥2 mg/kg/day, or ≥15 mg/day for ≥1 month) or other immunosuppressive medication

Close contact to someone with infectious TB disease

- Should test if patient has never been tested for this exposure

Treat for LTBI if TB test result is positive and active TB disease is ruled out.

None of the above: No TB testing is indicated at this time.*

Please complete all information below:

Patient/Student

Name: _____

Date of Birth: ____ / ____ / ____

Provider's Name: _____

Assessment Date: ____ / ____ / ____

*See The Connecticut TB Risk Assessment: User Guide section "Local recommendations, mandated testing and other risk factors."

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Avoid testing persons at low risk

Routine testing of persons without risk factors is not recommended and may result in unnecessary evaluations and treatment because of falsely positive test results.

If necessary, prioritize persons with risks for progression

If health system resources do not allow for testing of all non-U.S. born persons from a country with an elevated TB rate, prioritize patients with at least one of the following medical risks for progression:

- diabetes mellitus
- smoker within past 1 year
- end stage renal disease
- leukemia or lymphoma
- silicosis
- cancer of head or neck
- intestinal bypass/gastrectomy
- chronic malabsorption
- body mass index ≤ 20
- immunosuppression (see TB Risk Assessment)
- Upper lobe fibrotic lesion that has not shown at least one year of stability on two chest radiographs, after evaluation to ensure not active

United States Preventive Services Task Force (USPSTF)

The USPSTF has recommended testing persons born in, or former residents of, a country with an elevated TB rate (regardless of length of time in the U.S.) and persons who live in or have lived in high-risk congregate settings such as homeless shelters and correctional facilities. Because the increased risk of exposure to TB in congregate settings varies substantially by facility and local health jurisdiction, clinicians are encouraged to follow local recommendations when considering testing among persons from these congregate settings. The USPSTF did not review data supporting testing among close contacts to persons with infectious TB or among persons who are immunosuppressed because these persons are recommended to be screened by public health programs or by clinical standard of care.

Local recommendations, mandated testing and other risk factors

Several risk factors for TB that have been used to select patients for TB screening historically or in mandated programs are not included among the components of this risk assessment. This is purposeful in order to focus testing on patients at highest risk. However, certain populations may be mandated for testing by statute, regulation, or policy. This risk assessment does not supersede any mandated testing. Examples of these populations might include: primary and secondary school students, healthcare workers, residents or employees of correctional institutions, substance abuse treatment facilities, homeless shelters, and others.

For public schools, [Connecticut General Statutes Section 10-206](#) (b) and (c) mandate that each student have a health assessment at three time periods during his/her primary and secondary school education: “prior to public school enrollment,” during Grade 6 or 7, and during Grade 9 or 10. [Connecticut General Statutes Section 10-206](#) (c) states that: “The assessment shall also include tests for tuberculosis...where the local or regional board of education, in consultation with the school medical advisor and the local health department, or in the case of a regional board of education, each local health department, determines that said screening or test is necessary...” The results of the risk assessment and testing, when done, should be recorded on the Connecticut State Department of Education (CSDE) [Health Assessment Record](#) (HAR-3); or on the CSDE [Early Childhood Health Assessment Record](#); and in the student’s Cumulative Health Record (CHR-1).

Public school personnel (e.g. teachers) are not required to be tested for TB by any Connecticut state statute or regulation.

Age as a factor

Age is not considered in this risk assessment. However, children and younger adults have more years of expected life during which progression from latent infection to active TB disease could develop. Some programs or clinicians may additionally prioritize testing of younger non-U.S.-born persons where all non-U.S.-born are not tested. An upper age limit for testing has not been established but could be appropriate depending on individual patient TB risks, comorbidities, and life expectancy. This risk assessment tool is valid for both adults and children.

When to repeat a risk assessment and testing

Risk assessments should be completed for new patients, patients thought to have new potential exposures to TB since last assessment, and during routine pediatric well-child visits. Repeat risk assessments should be based on the activities and risk factors specific to the person. Persons who volunteer or work in health care settings might require annual testing and should be considered separately. Re-testing should only be done in persons who previously tested negative and have new risk factors since the last assessment (unless they were <6 months of age at the time of testing). In general, new risk factors would include new close contact with an infectious TB case or new immunosuppression, but could also include foreign travel.

Immunosuppression

The exact level of immunosuppression that predisposes to increased risk for TB progression is unknown. The threshold of steroid dose and duration used in the Connecticut TB Risk Assessment are based on data in adults and in accordance with ACIP recommendations for live vaccines in children receiving immunosuppression.

Foreign travel or residence

Travel or residence in countries with an elevated TB rate may be a risk for TB exposure in certain circumstances (e.g., extended duration, likely contact with persons with infectious TB, high prevalence of TB in travel location, non-tourist travel). The one month duration of travel or

residence used in this risk assessment is intended to identify travel most likely to involve TB exposure. TB screening tests can be falsely negative within the 8 weeks after exposure, so are best obtained 8 weeks after a person's return.

IGRA preference in non-U.S.-born persons ≥2 years old

Because IGRAs has increased specificity for TB infection in persons vaccinated with *Bacillus Calmette-Guérin* (BCG), IGRA is preferred over the TST for non-U.S.-born persons ≥2 years of age. IGRAs can be used in persons <2 years of age, however, there is an overall lack of data in this age group, which complicates interpretation of test results. In BCG vaccinated immunocompetent persons with a positive TST, it may be appropriate to confirm a positive TST with an IGRA. If IGRA is not done the TST result should be considered the definitive result.

Negative test for LTBI does not rule out active TB

It is important to remember that a negative TST or IGRA result does not rule out active TB disease. A negative TST or IGRA in a patient with active TB disease can be a sign of extensive disease. Any suspicion for active TB disease or extensive exposure to TB should prompt an evaluation for active TB disease, including physical exam, symptom review, and 2-view chest x-ray.

Most patients with LTBI should be treated

Persons with risk factors who test positive for LTBI should generally be treated once active TB disease has been ruled out with a physical exam, chest radiograph and, if indicated, sputum AFB smears, cultures, and NAAT. However, clinicians should not feel compelled to treat a person with a positive TB test who does not have identified TB risk factors, especially if at higher risk of adverse reactions.

Emphasis on short course regimens for LTBI treatment

Shorter regimens for treating LTBI have been shown to be as effective as 9 months of Isoniazid, and are more likely to be completed. Use of these shorter regimens is preferred in most patients, although the 12 week regimen is not recommended for children <2 years of age. It is under study in pregnancy. Drug-drug interactions and contact to drug resistant TB are other contra-indications for shorter regimens.

Medication	Frequency	Duration
Rifampin	Daily	4 months
Isoniazid + Rifapentine	Weekly	12 weeks**

**11-12 doses in 16 weeks required for completion.

Refusal of recommended LTBI treatment

Refusal should be documented. Recommendations for treatment should be made at future encounters with medical services. If treatment is later accepted, TB disease should be excluded and chest x-ray repeated if it has been more than 6 months from the initial evaluation for children or adults 5 years or older and 3 months for children less than 5 years of age.

Persons with a history of LTBI, with or without treatment

A person with a history of a documented positive TB test does not need to have a TB test repeated at any interval. If a person with a history of LTBI has a new TB exposure, they should have a symptom assessment to ensure they are well; for persons with a negative symptom assessment, repeat chest radiographs are rarely indicated. Persons with LTBI who completed treatment do not need to be treated again, except in rare circumstances (e.g. exposure to a drug resistant strain of TB).

Symptoms that should trigger evaluation for active TB

Patients with any of the following symptoms that are otherwise unexplained should be evaluated for active TB disease: cough for more than 2-3 weeks, fevers, night sweats, weight loss, lymphadenopathy, hemoptysis or excessive fatigue.

Resources

Connecticut State Department of Public Health: Tuberculosis Control Program
<https://portal.ct.gov/en/DPH/Infectious-Diseases/Tuberculosis/Tuberculosis-Control-Program>

Connecticut State Department of Education: School Nursing
www.ct.gov/sde/schoolnurse

Centers for Disease Control and Prevention (CDC) Basic Information and Facts about Tuberculosis
<https://www.cdc.gov/tb/topic/basics/default.htm>

CDC: Fact Sheets for LTBI Regimens, Isoniazid+Rifapentine, Rifampin, and Isoniazid are available at the following URL:
<https://www.cdc.gov/tb/publications/factsheets/treatment.htm>

National Tuberculosis Controller's Association Provider Guidance: *Using the Isoniazid/Rifapentine to Treat Latent Tuberculosis Infection (LTBI)*
<https://www.surveygizmo.com/s3/4592623/2018-3HP-Provider-Guidance-Download>

American Academy of Pediatrics, Red Book Online, Tuberculosis are available at the following URL:
<https://redbook.solutions.aap.org/chapter.aspx?sectionid=189640207&bookid=2205>

Abbreviations

AFB= acid-fast bacilli
BCG= Bacillus Calmette-Guérin
IGRA= interferon gamma release assay
LTBI= latent TB infection
NAAT= nucleic acid amplification testing
TB= tuberculosis
TNF= tumor necrosis factor inhibitors (?)
TST= tuberculin skin test