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PUBLIC HEALTH ADVISORY

To: Health Care Providers
From: Dr. Isaac Benowitz, State Epidemiologist
Subject: **Think. Test. Treat Tuberculosis (TB) in Maine.**
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Think. Test. Treat Tuberculosis (TB) in Maine.

Summary
March 24 is World TB Day. World TB Day is a time to recognize achievements and to renew our commitment to ending tuberculosis (TB) in the United States.

Recognize the signs and symptoms of TB disease, test for TB infection, and treat latent TB infection (LTBI) and TB disease.

- Consider TB disease in patients with symptoms such as hemoptysis, fatigue, loss of appetite, weight loss, night sweats, fever, and cough for more than 3 weeks, regardless of presence/absence of risk factors for TB disease.
- TB testing is recommended for patients with risk factors for becoming infected with TB such as foreign-born persons from countries with elevated rates of TB and history of working or living in a congregate setting (i.e., homeless shelters, correctional facilities, detention centers, and long-term care facilities).
- Timely completion of TB treatment is critical. Treatment for both LTBI and TB disease should be initiated early to avoid disease progression and further spread of TB. Make sure patients take all doses as prescribed to prevent severe disease and death, decrease risk of developing multi-drug resistance, and mitigate spread of TB to others.

Background

TB is a bacterial infection caused by *Mycobacterium tuberculosis* and can cause disease in any part of the body, including the spine, brain, and lymph nodes. Most commonly, TB occurs in the lungs and can lead to severe pulmonary disease. TB bacteria is spread through the air by prolonged person-to-person close contact. TB disease remains a leading cause of death worldwide; 1.6 million people died of TB in 2021. Maine CDC identifies approximately 10–20 cases of TB disease per year. Many of the cases of TB disease in Maine are among individuals with risk factors for TB disease.

Patients infected with *Mycobacterium tuberculosis* can have LTBI or TB disease.

- **Individuals with LTBI** are asymptomatic and noninfectious. Bacteria are present within the lungs but are contained and unable to spread to others. Left untreated, LTBI can progress to symptomatic TB disease later in life.
- **Individuals with TB disease** are symptomatic and infectious. TB disease can be fatal if not recognized and treated.

Screening Recommendations

Certain people at **higher risk for being infected with TB bacteria** should be screened for TB infection, including:

- People who have spent time with someone who has TB disease
- People from a country where TB disease is common (Most TB disease occurs in sub-Saharan Africa, Eastern Europe, and Asia)
- People who live or work in high-risk settings (for example: correctional facilities, long-term care facilities or nursing homes, and homeless shelters)
- Infants, children, and adolescents exposed to adults who are at increased risk for LTBI or TB disease
- People at higher risk of developing TB disease

Testing

Commonly used screening tests for TB include, the tuberculin skin test (TST) or the interferon-gamma release assay (IGRA) blood test. IGRA is the preferred TB test for persons born outside the United States, many of whom have received the Bacille Calmette-Guerin (BCG) vaccine. TST is considered safe in children of any age. A positive result on either test usually indicates a person has been infected with TB bacteria, however it *does not* distinguish between LTBI and TB disease.

LTBI is a clinical diagnosis established by identifying prior TB infection (with a TST or an IGRA) AND **excluding TB disease.** Further clinical evaluation is warranted to rule out TB disease, which includes chest radiography.

If imaging suggests TB infection of the lungs or airways, three sputum specimens (obtained via cough or induction, at least eight hours apart, and including at least one early-morning specimen) should be submitted for acid-fast bacilli (AFB) smear, mycobacterial culture, and nucleic acid amplification testing (NAAT) to fully rule out TB disease.

Treatment

- **Prevent progression of LTBI to TB disease:** Consider treating all patients with LTBI unless it is medically contraindicated. While patients with LTBI are not symptomatic, if left untreated they have approximately a 10% lifetime risk of developing TB disease; this risk increases among patients who are immunocompromised.
- **Ensure patients with LTBI and TB disease complete treatment:** Counsel patients on the importance of treatment completion for LTBI and TB disease.
    - Treatment for LTBI can take 3, 4, 6, or 9 months
    - Treatment for TB disease can take 4, 6, or 9 months

Table 1. Characteristics of LTBI and TB Disease

	LTBI	TB Disease (pulmonary)
Symptoms	Absence of tuberculosis symptoms	Symptoms[1] including cough, chest pain, night sweats, weight loss, fever
Infectiousness	Not infectious	Infectious
Screening Test	Positive TST[2] or IGRA ***These tests do not distinguish between LTBI and TB disease***	
Chest Radiograph	Imaging does not suggest TB of the lungs or airways	Imaging suggests TB of the lungs or airways
AFB smear	No presence of AFB in pulmonary specimen	May be presence of AFB in pulmonary specimens
NAAT	*Mycobacterium tuberculosis* not identified	*Mycobacterium tuberculosis* may be identified
Mycobacterial culture	No growth	Growth
Treatment	Recommended to prevent development in TB disease. There are 3-, 4-, 6-, or 9-month regimens available.	Necessary to prevent severe disease and death, developing multi-drug resistance and to mitigate spread of TB to others. There are 4-, 6-, or 9-month regimens available.

Recommendations

Maine CDC recommends healthcare providers:

- **Recognize the signs and symptoms of TB disease:** testing and clinical evaluation for TB disease should occur even if a patient does not appear to have risk factors for TB.
- **Test patients with risk factors for or symptoms of TB disease:** using TST or IGRA.
- **Treat patients:** Treatment for both LTBI and TB disease should be initiated early to avoid disease progression and further spread of TB. **Ensure treatment completion:** treatment should be completed to prevent severe disease and death, prevent development of multi-drug resistance, and mitigate spread to others.

[1] These symptoms are characteristic of pulmonary tuberculosis which is the most common site of TB disease. Extrapulmonary TB may different symptoms, and tests of sputum may be not indicate presence of tuberculosis bacteria if disease is not in the lungs.

[2] Interpretation of TSTs varies by patient risk factors. Interpretation guidelines can be found here. TST is considered safe in children of any age.

- **Seek medical consultation or refer patient to a specialist:** Maine CDC works with TB consultants throughout the state who provide consultation on LTBI or TB disease. Healthcare providers can be connected with a TB consultant by calling Maine CDC at **1-800-821-5821.** Maine CDC also provides patient support, administers directly observed therapy for all patients with TB, and covers the cost associated with treatment. Please refer to Maine CDC's website for patient referral information.

Reporting

- TB disease is a reportable condition in Maine. All active and suspected cases of TB disease should be reported to Maine CDC by calling **1-800-821-5821**.
- LTBI is *not* a reportable condition.

Additional Information

- Maine CDC: Tuberculosis: https://www.maine.gov/dhhs/tb
- LTBI referral form: https://www.maine.gov/dhhs/mecdc/infectious-disease/epi/tuberculosis/health-care.shtml
- Webinar: Latent Tuberculosis Information for the Primary Care Provider (Recording). March 9, 2023. https://northernlighthealth.org/Our-System/Eastern-Maine-Medical-Center/Care-Centers-Services/Infectious-Diseases/Webinar-Latent-Tuberculosis-March-9.
- U.S. CDC: Think. Test. Treat TB. for Healthcare Providers: https://www.cdc.gov/thinktesttreattb/healthcare-providers.html
- U.S. CDC: Tuberculosis Guidelines: https://www.cdc.gov/tb/publications/guidelines/default.htm
    - LTBI: https://www.cdc.gov/tb/topic/treatment/ltbi.htm
    - TB Disease: https://www.cdc.gov/tb/topic/treatment/tbdisease.htm
- Tuberculosis Screening, Testing, and Treatment of U.S. Health Care Personnel: Recommendations from National Tuberculosis Controllers Association and U.S. CDC, 2019: https://www.cdc.gov/mmwr/volumes/68/wr/mm6819a3.htm
- U.S. CDC: LTBI: A Guide for Primary Health Care Providers: https://www.cdc.gov/tb/publications/ltbi/pdf/LTBIbooklet508.pdf
- PPD Interpretation: https://www.cdc.gov/tb/publications/factsheets/testing/skintesting.htm
- Rutgers Global TB Institute: https://globaltb.njms.rutgers.edu/