Prevent Tuberculosis (TB) in 4 Steps: A Guide for Medical Providers

1 Identify patients at risk for TB Infection

- Use Oregon TB Risk Assessment[1]

Risk present → proceed to Step 2

Risk absent → Testing low risk individuals is not recommended

2 Test patients for TB Infection

- Use QuantiFERON®-TB Gold Plus (QFT-Plus) or T-SPOT®.TB (T-SPOT) for patients age ≥2 years[2,3]

Test positive → proceed to Step 3

Test negative → No further evaluation unless recent contact to TB case, or have symptoms of TB disease[4]; discuss these patients with local TB program[10]

Test indeterminate → Repeat QFT-Plus or T-SPOT test. For persistent indeterminate, consult local/state TB experts[10]

3 Evaluate for TB disease

- Use TB symptom screen[4], physical exam, and chest x-ray (CXR)[5]
- Do not treat for latent TB infection (LTBI) until TB disease is excluded

Symptom screen and CXR are normal → proceed to Step 4

Symptom screen or CXR are abnormal → Consider sputum x3 for AFB smear, culture, & nucleic acid amplification test → For patients with highly suspected or confirmed TB, report to your local TB program[10] & consider treatment for TB disease

4 Treat LTBI to prevent TB disease

- Evaluate for pregnancy[6] and relevant medical conditions[7]
- Check baseline liver function tests (LFT) for select populations[8]
- Use 3 or 4 month LTBI treatment regimens whenever possible[9]

TB 101

TB disease: TB is a bacterial disease that is transmitted through the air and infects the lungs. However, TB can spread to other parts of the body. People with TB disease usually have symptoms such as cough, fever, or weight loss and are often highly infectious.

TB disease is serious but can be cured with appropriate treatment.

Latent TB infection (LTBI): LTBI is an asymptomatic infection with TB bacteria. Persons with LTBI feel well and are not infectious, but they can develop TB disease months or years after being infected.

TB disease is still seen in Oregon. We can prevent TB cases by finding and treating people with LTBI.

Oregonians most at risk are those that have been exposed to TB disease, have lived overseas, have experienced homelessness, and/or are immunocompromised.

Screening for LTBI of persons at increased risk is a grade B recommendation from the USPTF

Oregon Health Authority

Adapted with permission from the California Department of Public Health (CDPH) TB Control Branch

Prevent Tuberculosis (TB) in 4 Steps: A Guide for Medical Providers

1. **Oregon Health Authority Tuberculosis (TB) Risk Assessment** is available here: https://www.oregon.gov/oha/PH/DISEASESCONDITIONS/COMMUNICABLEDISEASE/TUBERCULOSIS/Documents/OR%20TB%20Risk%20Assessment.pdf

   Risk factors that should prompt testing for TB infection include any of the following:

   - ☐ **Birth, travel, or residence** in a country with an elevated TB rate for at least 2 months
     - Includes any country other than the United States, Canada, Australia, New Zealand, or a country in western or northern Europe
   - ☐ **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 ≥2 weeks) or other immunosuppressive medication
   - ☐ **Close contact** to someone with infectious TB disease during lifetime
   - ☐ **Experiencing or experienced homelessness**

2. QuantiFERON®-TB Gold Plus (QFT-Plus) or T-SPOT®.TB (T-Spot) are blood tests that have been approved by the U.S. Food and Drug administration (FDA). TB blood tests are the preferred method of testing for patients age >2 years and are not affected by prior BCG vaccination. For patients age <2, use TB skin test (TST).

3. **Prior TB treatment:** If patient has previously been treated for TB disease or latent TB infection (LTBI), do not repeat TB blood tests or TST. If there is clinical concern for TB disease or a new TB exposure, evaluate for TB disease using symptom screen, physical exam, and chest x-ray (CXR).

4. **TB Symptom screen:** Patients should be asked about presence of >2 weeks of any of these symptoms:
   • Cough • Hemoptysis • Fever • Night sweats • Unexplained weight loss

5. **CXR:** Posteroanterior (PA) view is sufficient for patients > 5 years. For patients <5 years, obtain both PA and lateral views. CXR abnormalities in TB disease may include infiltrates, nodules, cavitation, pleural effusion, & hilar lymphadenopathy.

6. **Pregnant patients** with a positive QFT-Plus, T-Spot or TST should receive prompt evaluation for TB disease including CXR with abdominal shielding. For pregnant patients who are at low risk for progression to TB disease, LTBI treatment can be deferred until 3 months postpartum, due to risk of hepatotoxicity caused by LTBI medications. Pregnant patients with LTBI should be treated immediately if they are recent contacts of a TB case, documented new converters, have HIV or other immune suppression related to diabetes, medication, etc. Consult with TB expert as needed.

7. **Medical conditions** that may increase risk of adverse events during LTBI treatment include HIV infection, liver disease (including cirrhosis, non-alcoholic fatty liver disease, chronic hepatitis B & C), heavy alcohol use, use of hepatotoxic medication, or age > 50 years. Patient with these conditions can still be treated, with baseline lab testing and clinical monitoring.

8. **Baseline liver function tests (LFT)** are needed prior to starting LTBI treatment, for all pregnant patients and those with medical conditions listed above.
   - If ALT is normal, proceed with LTBI treatment, routine LFT testing not needed.
   - If ALT elevated < 3x upper limit of normal, consult MD and consider LTBI treatment with monthly LFT testing.
   - If ALT > 3x upper limit of normal, consult local or state TB expert prior to LTBI treatment.

9. **LTBI treatment regimen** should be selected based on medical history, drug interactions, and patient preference. Three or four month regimens are preferred. Drug interactions should be carefully reviewed with a clinical drug database or pharmacist; many drug interactions can be managed with close patient monitoring. Current LTBI treatment options include:
   - **4 months of daily rifampin (4R):** strongly preferred regimen for adults and children of all ages (HIV-uninfected)
   - **3 months/ 12 weekly doses of isoniazid + rifapentine (3HP):** strongly preferred regimen for children age >2 and non-pregnant adults (including people living with HIV, as drug interactions allow)
   - **3 months of daily isoniazid + rifampin (3HR):** preferred regimen for children of all ages and non-pregnant adults (including people living with HIV, as drug interactions allow)
   - **9 months of daily isoniazid (9H):** alternative regimen for children and adults; often used in pregnant patients and those with significant drug interaction or intolerance to rifampin/rifapentine, including people living with HIV on antiretroviral therapy
   - **6 months of daily isoniazid (6H):** alternative regimen for children and adults

   More drug information, including dosing, available here: https://www.cdc.gov/tb/topic/treatment/ltbi.htm

10. **For additional support contact your local health department or the state TB program:**

    Oregon Health Authority TB Program
    Phone: 503-358-8516
    Email: heidi.behm@dhsoha.state.or.us

Oregon Health Authority

OHA 4190 (3/2022)