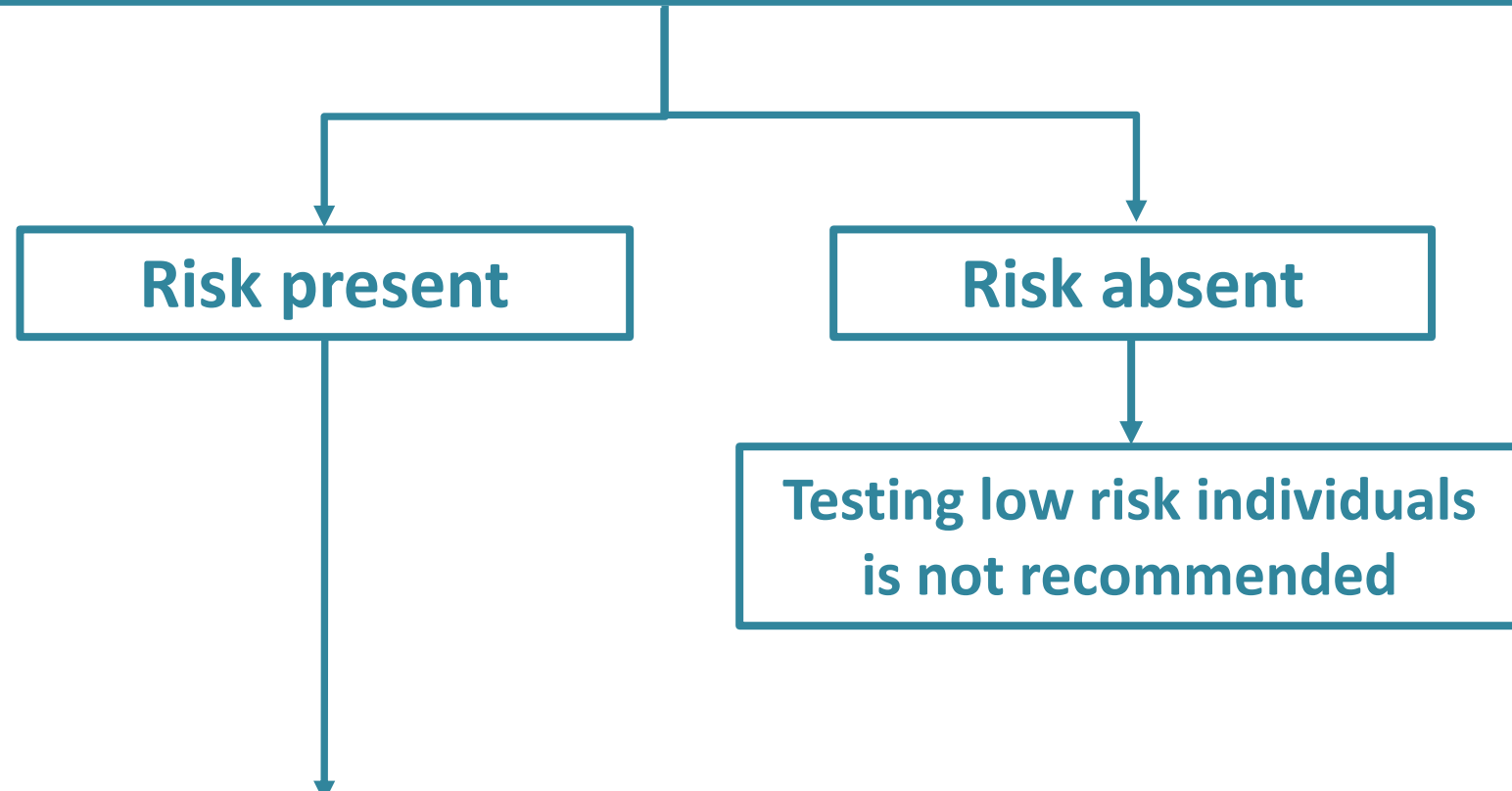


Prevent Tuberculosis (TB) in 4 Steps: A Guide for Medical Providers

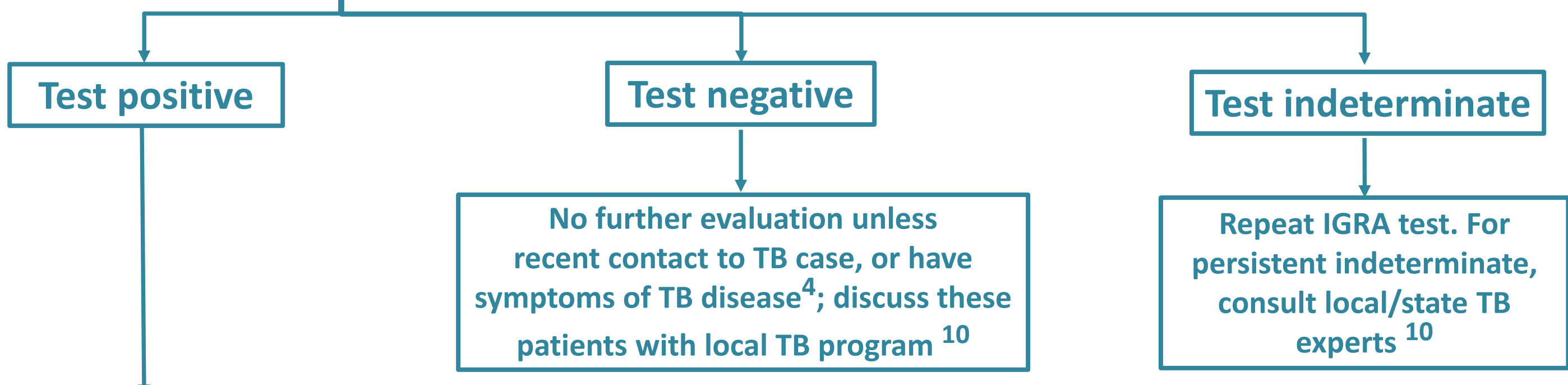
1 Identify patients at risk for TB Infection

- Use California TB Risk Assessment ¹



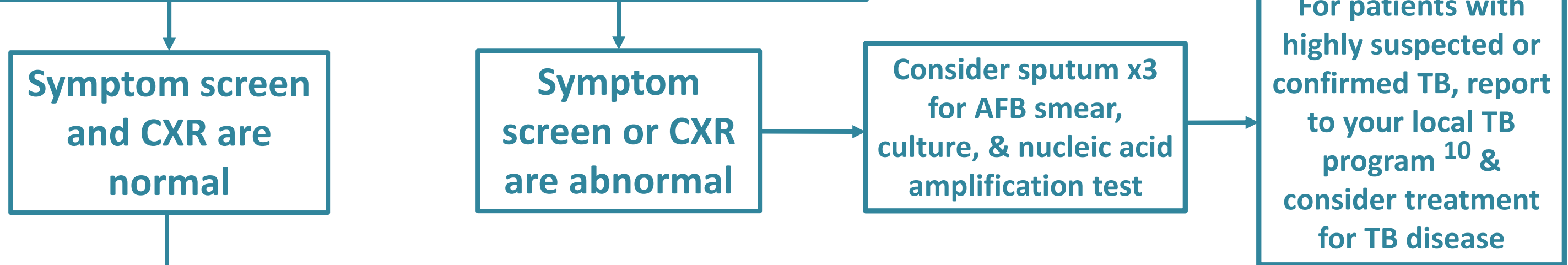
2 Test patients for TB Infection

- Use interferon gamma release assay (IGRA) for patients age ≥ 2 years ^{2,3}



3 Evaluate for TB disease

- Use TB symptom screen⁴, physical exam, and chest x-ray (CXR)⁵
- Do not treat for latent TB infection (LTBI) until TB disease is excluded



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 transmitted through the air and infects the lungs, but can spread to other organs. People with TB disease usually have symptoms such as cough, fever, or weight loss, and are often highly infectious. *One in ten people with TB disease will die.*

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

80% of TB disease in California comes from progression of untreated LTBI.

We can prevent TB cases by finding and treating people with LTBI.



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1 California Department of Public Health Tuberculosis (TB) Risk Assessment is available here:

<https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/TB-Risk-Assessment.aspx>

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 1 month
 - 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

2 Interferon gamma release assays (IGRA), may include Quantiferon-TB Gold Plus (QFT) or T-SPOT. IGRAs are not affected by prior BCG vaccination and are the preferred test for all patients age ≥ 2 years. 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 IGRA 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 ≥ 10 years. For patients < 10 years, obtain both PA and lateral views. CXR abnormalities in TB disease may include infiltrates, nodules, cavitations, effusions, & hilar lymphadenopathy.

6 Pregnant patients: Pregnant women with a positive IGRA or TST should receive prompt evaluation for TB disease including CXR with abdominal shielding. For most pregnant patients, LTBI treatment can be deferred until 3 months postpartum, due to risk of hepatotoxicity of LTBI medications during pregnancy and early postpartum period. Pregnant women with LTBI should be treated immediately if they are recent contacts of a TB case, documented new converters, have HIV or significant immune suppression.

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 $\leq 3x$ 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, or to talk to a local or state TB expert, contact:

- Local TB Program: <https://ctca.org/directory/>
- State TB Control Branch: (510) 620-3000 or tbc@cdph.ca.gov
- Curry International Tuberculosis Center: <https://www.currytbcenter.ucsf.edu/>

