The Wisconsin Tuberculosis Program recommends an interferon gamma release assay (IGRA) rather than a tuberculin skin test (TST) in individuals 2 years or older. An IGRA provides an equally sensitive, but much more specific, test of the body’s immune response to tuberculosis (TB) than a TST. Local and Tribal health departments (LTHDs) can use this guide to interpret IGRA results and decide on next steps.

Next steps after a patient gets a positive IGRA result

**Does my patient have any of the risk factors for TB?**

- Lives, has traveled (for 1 month or more), or was born in a country with high TB prevalence
- Close contact with someone with infectious TB disease
- Recent TB symptoms—persistent cough lasting more than three weeks and one or more of the following symptoms: fever, night sweats, coughing up blood or sputum (thick mucus), weight loss, or fatigue
- Current or former employee or resident of a high-risk congregate setting (correctional facility, long-term residential care facility, or shelter for the homeless) in a state or district with an elevated TB rate (Alaska, California, Florida, Hawaii, New Jersey, New York, Texas, or Washington DC)

**Do they have two or more of the following symptoms?**
Cough more than three weeks, fever, night sweats, coughing up blood or sputum (thick mucus), weight loss, or fatigue

**Patient should isolate (stay at home) until you perform a chest X-ray and medical evaluation to assess for active TB disease.**

- If the chest x-ray is abnormal, collect three sputum specimens for acid-fast bacilli (AFB) smear and culture, eight to 24 hours apart, with at least one being an early morning specimen.
- If pulmonary and extrapulmonary TB are ruled out, the patient has latent tuberculosis infection (LTBI) and should be offered preventive treatment.
- Report LTBI to the LTHD.

**Perform a chest X-ray and medical evaluation to assess for active TB disease.**

- If active TB is ruled out, the patient has LTBI and should be offered preventive treatment.
- No restriction on movements or work (no quarantine or isolation) is needed.
- Report LTBI to the LTHD.

**Retest in 3–6 months with another IGRA (QuantiFERON® or T-SPOT®) as a second diagnostic confirmatory test.**

The person is considered infected only if both tests are positive.

- The bacille Calmette-Guerin (BCG) vaccination does not cause false-positive results on an IGRA.
- When people who are low risk have low-level positive results, it may suggest a false positive. Results are low-level positives when TB-nil (TB antigen levels minus Nil results) is between 0.36 and 1.10 IU/mL. Retest in 3–6 months. See “Low-level positive QFT results” on page 2.
- Non-tuberculous mycobacteria (*M. kansasii*, *M. szulgai*, and *M. marinum*) may cause a false positive IGRA reaction.
Interpreting IGRA results

Two IGRA are approved and commercially available in the U.S: QuantiFERON®-TB Gold In-Tube test (QFT-GIT) and T-SPOT®.TB test (T-Spot).

<table>
<thead>
<tr>
<th>IGRA Test Result</th>
<th>QuantiFERON</th>
<th>T-Spot</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>TB-Nil is higher than or equal to 0.35 IU/mL</td>
<td>8 spots or more</td>
<td>Infection is likely in individuals with risk factors. Consider retesting in low- or no-risk individuals.</td>
</tr>
<tr>
<td>Negative</td>
<td>TB-Nil is lower than 0.35 IU/mL</td>
<td>4 spots or less</td>
<td>Infection is unlikely.</td>
</tr>
<tr>
<td>Indeterminate or invalid</td>
<td>High nil value or low mitogen value</td>
<td>High nil value or low mitogen value</td>
<td>Collect another specimen for retesting since these results cannot be interpreted. This occurs if controls do not perform as expected.</td>
</tr>
<tr>
<td>Borderline (not clear)</td>
<td>Not applicable</td>
<td>5, 6 or 7 spots</td>
<td>Uncertain likelihood of TB infection. Collect another specimen for retesting.</td>
</tr>
</tbody>
</table>

Low-level positive QFT results

Retest low-risk individuals in 3–6 months if their initial QFT-GIT has TB-Nil results between 0.36 and 1.10 IU/mL. Studies show most low-level positive IGRA results for low-risk individuals become negative when retested 6 months later (a sign that they are false positives). This was most likely to happen if their initial QFT results were higher than 0.35 IU/mL and lower than 1.11 IU/mL.

Prevent boosted results from TST

TSTs may cause an immune response which can later be detected by IGRA testing. If an IGRA (either a T-Spot or QFT-GIT®) is performed shortly after a TST, the numeric results might increase and may be misinterpreted as a new infection. This is called boosting. If a TST was administered, the Wisconsin TB Program recommends IGRA testing at least 90 days after a TST to avoid potential boosting.

References

1. CDC. Tuberculosis screening, testing, and treatment of U.S. health care personnel: Recommendations from the National Tuberculosis Controllers Association and CDC, 2019. MMWR 2019: 68(No. 19).