

January 2010

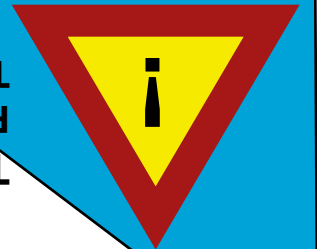
TUBERCULOSIS

Testing for TB Infections & Guidelines for Post-Test Referral

Provider Guide



TUBERCULOSIS IS A REPORTABLE DISEASE
Required by California Law
Telephone: 415 206 8524 Fax: 415 206 4565



QuantiferON® - TB Gold In-Tube Test

WHAT IS IT?

The QuantiferON® TB In-Tube test (QFT-IT) is a serological whole-blood test for use as an aid in diagnosing *Mycobacterium tuberculosis* infection. This test was approved by the U.S. Food and Drug Administration (FDA) in 2007. This test cannot, in and of itself, rule in or out active tuberculosis disease.

WHAT ARE THE ADVANTAGES?

- ◆ Requires a single patient visit to draw blood sample.
- ◆ Does not boost responses measured by subsequent tests.
- ◆ Is not subject to reader bias.
- ◆ Is not affected by prior BCG (bacille Calmette-Guérin) vaccination and most other mycobacteria.
- ◆ Can alert providers to patients with impaired T-cell immunity (e.g., persons with HIV, cancer, renal failure, or undergoing immunosuppressive therapy). Those unable to mount an immune response will most likely produce an indeterminate test result.

WHAT ARE THE DISADVANTAGES AND LIMITATIONS?

- ◆ Blood samples must be processed by your assigned laboratory within 16 hours of collection, or be incubated on-site within strict guidelines (contact TB Clinic for more information about on-site handling and incubation).
- ◆ There is limited data on the use of QFT-IT in children younger than 5 years of age.
- ◆ Errors in collecting or transporting blood specimens or in running and interpreting the assay can decrease the accuracy of QFT-IT.
- ◆ The ability of QFT to predict the risk of LTBI progression to TB disease has not been clearly determined. Current evidence indicates an equal to or higher risk of progression when compared to the TST.

Clinical questions related to QuantiferON®-TB In-Tube testing may be directed to TB Clinic at 415.206.8524

Although not utilized in San Francisco, there is another interferon gamma release assay (IGRA) test called the T-Spot® which was FDA approved on July 25, 2008.

Targeted Testing of high risk populations for TB Infection and Post-Test Referral

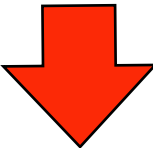
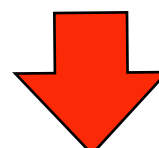
Step 1	Symptom Review and Risk Factor Assessment (Table 1)	
	Yes, risk factor(s) and ≥1 symptom(s) <ul style="list-style-type: none"> ◆ Prolonged cough ≥ 3 weeks ◆ Unexplained weight loss ◆ Night sweats ◆ Chronic fever ◆ Chest pain ◆ Coughing up blood 	
Urgent CXR and medical evaluation needed. Consult TB Clinic if CXR abnormal.		TB Testing → go to step 2
Step 2	Classify the Results for TB Infection Test	
The following Tuberculin Skin Test (TST) measurements of induration are classified as positive.*		
≥ 5 mm	≥ 10 mm	
<ul style="list-style-type: none"> ◆ HIV-positive ◆ Abnormal CXR ◆ Recent contact to persons with active TB disease ◆ Immunosuppressed (on corticosteroids or organ transplant drugs) 	<ul style="list-style-type: none"> ◆ All others with TB risk factors (Table 1 & 2) <p>Note: CDC classification of ≥15mm not recognized in California</p>	
QuantiFERON® (QFT®) result classifications:		
QuantiFERON Positive™	QuantiFERON Negative	QuantiFERON indeterminate
<ul style="list-style-type: none"> ◆ Indicates TB Infection 	<ul style="list-style-type: none"> ◆ Indicates no TB Infection <p style="color: red;">Caution! As with the TST- false negative can occur with active TB and immunocompromised persons.</p>	<ul style="list-style-type: none"> ◆ Indicates test failure. Options are to repeat test or do TST.
<p>*High-Priority Contacts - Certain high-priority contacts need medical follow-up even if their reaction is less than 5 mm because they are at high risk of both developing active TB disease and having a false-negative TST-result. These include: (1) immunocompromised contact and (2) children younger than age 5 who were tested less than 8-10 weeks after the last exposure to TB. No further evaluation is necessary when high-priority contacts have a negative reaction to a TST given <i>more</i> than 8 weeks after the last exposure to TB. See Step 3 and Table 3 footnotes(*).</p>		
Step 3	TB test positive: CXR and medical evaluation indicated.	
REFERRAL CRITERIA FOR TB CLINIC MEDICAL EVALUATION: <ul style="list-style-type: none"> ◆ Must be resident of the City and County of San Francisco and ◆ Have a positive TB test and ◆ Meet criteria for LTBI treatment listed in Table 3 below and <p style="text-align: center;">→ completed TB 47 interagency referral form or patient summary on physician letterhead.</p>		

Table 1. Persons at higher risk for exposure to or infection with TB
<ul style="list-style-type: none"> ◆ Close contacts of persons known or suspected to have active TB disease ◆ Foreign-born persons from areas where TB is common (excluding Canada, Western Europe, Australia and Japan) ◆ Residents and employees of high-risk congregate settings (e.g., institutional settings, nursing homes, dialysis centers, homeless shelters, jails) ◆ Healthcare workers who serve high-risk patients ◆ Medically under-served, low income populations ◆ High-risk racial or ethnic minority populations ◆ Children exposed to adults in high-risk categories ◆ Chronic substance abuse

Table 2. Medical risk factors for the development of active TB disease in TB-infected patients
<ul style="list-style-type: none"> ◆ Diabetes Mellitus ◆ HIV infection (or risk for HIV in patients who decline HIV testing) ◆ New TB infection within the previous two years (TB test converter) ◆ Evidence of old, healed TB on CXR ◆ End-stage renal disease ◆ Corticosteroid therapy (for ≥ 3 wks) ◆ Other immunosuppressive therapy (solid organ transplant) ◆ Cancer of the head and neck ◆ Hematologic and reticuloendothelial diseases (e.g., leukemia and Hodgkin's disease) ◆ Chronic malabsorption syndromes. ◆ Intestinal bypass or gastrectomy. ◆ Being 10% or more below ideal body weight ◆ Injection drug users ◆ Current or past tobacco use

Table 3. SF TB Clinic guidelines for treatment of latent tuberculosis infections by patient risk factors, TST result, QuantiFERON® result and age ^{1,4}						
Candidates for Treatment of Latent Tuberculosis Infection (LTBI)						
CATEGORY OF PERSON TESTED	TST<5mm	TST≥5mm	TST≥10mm	or	QFT-Pos ⁵	QFT-Neg
TB Case Contact: Children < age 5 ¹	Treat ²	Treat	Treat		Treat	Treat ²
TB Case Contact: HIV-infected ³	Treat ²	Treat	Treat		Treat	Treat ²
TB Case Contact: Immunocompromised ¹	Treat ²	Treat	Treat		Treat	Treat ²
TB Case Contact: ≥ age 5 & immunocompetent	Do Not Treat	Treat	Treat		Treat	Do Not Treat
Immunocompromised persons or HIV-infected	Do Not Treat	Treat	Treat		Treat	Do Not Treat
Fibrotic changes on chest x-ray	Do Not Treat	Treat	Treat		Treat	Do Not Treat
Foreign born <35 yrs or with medical risk factor (Table 2)	Do Not Treat	Do Not Treat	Treat		Treat	Do Not Treat
Recent arrival from endemic country (in US < 5 years) ⁶	Do Not Treat	Do Not Treat	Treat		Treat	Do Not Treat
Injection drug user known to be HIV-	Do Not Treat	Do Not Treat	Treat		Treat	Do Not Treat
Resident/worker in institutional settings < 35 years old ⁷	Do Not Treat	Do Not Treat	Treat		Treat	Do Not Treat
Healthcare worker < 35 years old	Do Not Treat	Do Not Treat	Treat		Treat	Do Not Treat
High risk medical conditions (Table 2)	Do Not Treat	Do Not Treat	Treat		Treat	Do Not Treat
TB Converters within 2 years ⁷	Do Not Treat	Do Not Treat	Treat		Treat	Do Not Treat
No risk factors < 21 (found through inadvertent testing)	Do Not Treat	Do Not Treat	Treat		Treat	Do Not Treat
Footnotes						
<ol style="list-style-type: none"> 1. Case contacts who are under 5 years of age or immunocompromised, initially testing negative should be started on therapy. Testing should be repeated 8-10 weeks after last exposure to TB. Treatment can be discontinued after second negative TST or QFT® in children. Immunocompromised patients with a second negative TST or QFT® need to be evaluated by a physician. 2. Treat and repeat TST or QFT® after 8-10 weeks. 3. HIV-infected contact should receive a full course of treatment even if they have a second reaction of <5 mm or a negative QFT®. 4. QFT® preferred in BCG-vaccinated persons due to higher specificity than TST. 5. Rarely QFT® may cross-react with <i>M. kansasii</i>, <i>M. szulgai</i>, or <i>M. marinum</i>, resulting in a false positive result. 6. Those born outside the US (except Canada, Western Europe, Australia and Japan). 7. TST Conversion: an increase in reaction size of ≥10 mm within 2 years should be considered a TST conversion indicative of recent infection with <i>M. tb</i>. QFT-IT converter: Current positive test with a documented prior negative result within the past 2 years AND a ≥ 0.75 IU/ml quantitative increase in the antigen result. 						
When active TB is suspected because of symptoms or an abnormal CXR, a negative TST or QFT® result does not rule out disease, and further evaluation is indicated.						