

## What You Need to Know About Collecting QuantiFERON (QFT) TB Gold In-Tube Samples

### I. What is QuantiFERON (QFT) TB Gold In-Tube?

- QFT is an interferon-gamma release assay (IGRA).
- QFT is a blood test.
- It is a diagnostic tool we use to see if someone is infected with *Mycobacterium tuberculosis* (MTB). It cannot differentiate between latent TB infection (LTBI) and TB disease.

### II. Why do we prefer to use QFT vs. TST?

- QFT is more sensitive and specific than TST.
- We will not get a false positive reaction in the foreign-born because of BCG vaccination.
- The test can be done in one visit. This is perfect for transient populations, like the homeless, who may not be found for the TST reading.

### III. How do we collect a QFT sample?

The Senior (Sr.) Public Health Investigator (PHI) who is assigned the case will be the lead point person of the contact investigation. He/she will:

#### A. Before going out to congregate setting:

#### TIP

Make sure you are using the large size sharps container for appropriate sharps disposal.

1. Notify Greg Dufour to confirm QFT kit availability for the contact investigation testing date.
2. Obtain administrative documents used during CI testing. These include the inventory list, sign in sheet, temperature log, Contact Evaluation and Treatment (CET) forms and QFT labels.
3. Follow inventory checklist and restock the QFT supply containers as needed.
4. Designate the QFT testing team for paperwork and blood draw stations.

#### B. Day of blood draw



1. The QFT team will load up the vehicle with supplies and pick up the QFT collection kits from the laboratory. Make sure kits do not touch ice pack.  
*Check temperature from lab to testing site (between 63 F – 81 F).*



2. The lead Sr. PHI will provide TB education prior to testing.
3. The QFT team will set up paperwork and blood draw stations.  
*Monitor and log the temperature of the testing site (between 63 F - 77 F).*
4. Call each contact individually and fill out CET correctly and completely, including the assessment form.
5. Attach a completed lab request form with affixed patient label. **See SAMPLE: Lab Request Form.**
6. Send patient to available blood draw station.
  - Call lab with the time of the first draw after completing it.
  - Document the lab personnel who answered the call.

7. Use a butterfly needle when drawing blood. First attach a purging tube to the vacutainer, making sure blood flows completely into tube. Then collect one red-top, one purple-top, and one grey-top tube for each patient. Blood must reach the black level mark on each QFT test tube.
8. Gently shake all three tubes together ten times to coat the entire inner surface of the tube.
9. Label each testing tube. Do not cover the black level mark on the tube.
10. Place all three collection tubes in the specimen rack.
11. Phlebotomist will complete the CET and lab request form and a progress note.

**See SAMPLE: CET and SAMPLE: Lab Request Form.**

#### TIP

Take your time to find the best vein. Ask the patient which is their best vein.

Take precautions when disposing used needles.  
Don't "stick" yourself!





12. Repeat steps 7-11 for all patients until testing is complete.  
*Periodically ensure that room temperature stays between 63 F - 77 F.*

13. Once the blood draw is complete, check the level in all tubes and review lab request forms.

**It is everyone's responsibility to cross check all forms they come across.**



14. Place drawn blood/unused testing tubes in the ice chest and transport it to the lab. Kits should not touch the ice pack.  
*Monitor and document temperature from testing site to the lab (between 63 F – 81 F).*

15. Deliver the drawn blood/unused testing tubes to the lab. Lab personnel will sign and make a copy of the temperature log for their records. Drop off used biohazard bags at the lab for disposal.

16. Return to the TB Control Office. Place the original temperature log and the staff sign-in sheet in the QFT log book (located in the CI Coordinators Office). Return all unused supplies to the storage area.



Blood draw supplies including: tourniquet, butterfly needle, vacutainer, gauze, alcohol prep pad, purging tube, and Band-Aid.



QFT blood draw for semi-annual employee testing.

#### IV. How does the laboratory process this specimen?

1. Houston clinical scientists incubate and centrifuge blood samples to get a specific part of the blood called plasma.
2. The plasma of each client is loaded into an ELISA plate and placed inside the DS2 ELISA machine.
3. The machine runs the test and computer software analyzes the information to give us results.



Centrifuge machine



ELISA Kit reagents, QFT well plate, blood collection tubes, and DS2 ELISA machine.



**V. Results are in—how does this affect Case Registry, Nurse Case Managers, and the Field?**

- A. Case Registry will receive QFT results from the laboratory and forward them to the Chief Nurse.
- B. The Chief Nurse will check for borderline or indeterminate results and consult with the clinic physician to verify if the QFT should be repeated. All results are forwarded to Contact Investigations (CI) Manager.
- C. The Field will:
  - 1. The CI Manager will review results.
    - A larger than expected number of positive contacts during an investigation will prompt investigators to expand testing.
    - A large number of negative results shows that transmission probably did not occur, concluding the investigation.
  - 2. The CI Manager will forward results to the lead Sr. PHI responsible for the investigation.
  - 3. The lead Sr. PHI will review the results. If the contact is:

\* POSITIVE: TB-Antigen responsiveness detected\*

M. tuberculosis infection likely.

- Request a medical evaluation appointment and a transportation request (if needed).
- Make two copies of the QFT result. Attach the original copy to the CET. One copy will go to the patient and the other to the clinic.
- Fill out the CET once the patient has completed the evaluation. Turn it in to the CI Coordinator's office.

\* NEGATIVE: No TB-Antigen responsiveness detected\*

- Determine if a 2<sup>nd</sup> QFT is needed (if first test was not 8-10 weeks after breaking contact with case).
- Make one copy of the QFT result. Attach the original copy to the CET. One copy will go to the patient.
- Fill out and return CET to the CI Coordinator's Office.

- 4. The Sr. PHI will arrange for in-person delivery of the test result to the contact, regardless of the result. A negative QFT result may be mailed after exhausting all options for delivering the result.

**Contact Evaluation and Treatment Form Sample**

Houston Department of Health and Human Services Bureau of Tuberculosis Control												CONTACT EVALUATION & TREATMENT		Keymap #		
Invest. #	Case/Suspect #	Suspect Case React	Site	Sputum SM - Sm +	Cul - Cul +	MTB MOTT No ID	RX Start Date	Type Contact Investigation Close Source	Expanded Targeted	Referred Duplicate Out of Area	HH Status	CI A				
Contact Last Name			First Name			Middle Name		Contact TBID #								
AKA			Address						Reside Houston Other		Zip Code					
Date of Birth		Age	Sex M F				Homeless Yes No		School/Work Site							
SSN		Home Phone #						Country of Birth		Date of Entry into U.S.		Race White Black		Ethnicity Hispanic or Latino Non Hispanic or Non Latino		
Known Positive PPD Yes No Year		Verified Prior Tx for LTBI Yes No Date		BCG Vaccine Yes No Year		Symptoms of TB Yes No Date		History of TB Yes No Year		Special Therapy Status: Negative Case Infected Pending Refused Offered			Date <15 y/o - Not Indicated			
Alcohol Yes No		Medicaid Yes No		Medicaid #		Drug Injecting Non-Injecting No										
I hereby grant permission to have a Quantiferon test(s) performed on myself or _____ my minor under 18 year age.																
Date		Printed Name				Signature				Relationship						
1st QFT																
2nd QFT																
3rd QFT																
2ND QFT Test Needed		Date QFT Retest Needed		Known Positive QFT		Study 26 Literature Given Date		Converted from Neg QFT to Pos QFT Yes No								
PHI Name ( 1st QFT Test)		Supervisor								Data Entry Date						
PHI Name ( 2nd QFT Test)		Supervisor								Data Entry Date						
CI Stop Date		Reason Closed		<input type="checkbox"/> TBN Test Negative - FollowUp Completed <input type="checkbox"/> 2nd TBN Test Negative - FollowUp Completed <input type="checkbox"/> Completed recommended therapy <input type="checkbox"/> Supervision Completed - No Tx indicated <input type="checkbox"/> Refused 1st PPD <input type="checkbox"/> Refused Repeat PPD <input type="checkbox"/> Refused X-ray <input type="checkbox"/> Refused Tx for Latent TB Infection				<input type="checkbox"/> Contact chose to stop LTBI Treatment <input type="checkbox"/> Died Date <input type="checkbox"/> Adverse drug reaction <input type="checkbox"/> Diagnosed TB Case (M.TB) <input type="checkbox"/> Address never obtained <input type="checkbox"/> Provider decision to stop treatment <input type="checkbox"/> Moved Out of Area <input type="checkbox"/> Lost				<input type="checkbox"/> Prior -PPD/CI complete <input type="checkbox"/> Not a Contact <input type="checkbox"/> No Out of Area Reply <input type="checkbox"/> SC Non-TB/TB IV/EP/NSNC <input type="checkbox"/> SC MDR - No Tx indicated <input type="checkbox"/> Transfer to Harris Co. EP/NSNC <input type="checkbox"/> SC-ID				
Number Months Medication taken to date		Referral Date		PHI Name		Supervisor		Date Reviewed		Data Entry By		Data Entry Date				
Prior Contact to other case/suspect		1)		2)		3)		4)								

Individuals filling out paperwork will fill out this portion of the CET.

Individuals drawing blood will fill out this portion of the CET.

**Lab Request Form Sample**

<p><b>Name:</b> _____</p> <p><b>MR#:</b> _____</p> <div style="border: 2px solid green; padding: 5px; margin: 5px 0;"> <p>Last Name, First Name                  DOB; Last 4 digits of SS#    Race/Sex                  Date    Tester's Initials    Time Drawn</p> </div> <p><b>Clinic:</b> _____</p> <p style="text-align: center;"><b>LABEL OR PRINT</b></p>	<p><b>LAB REQUEST FORM</b></p>  <p>Houston Department of Health and Human Services                  Bureau of Laboratory Services                  1600 West Loop South, Houston, Texas 77030                  281-3927 Central Processing                  Health Center Support Labs                  3929 Laboratory Support                  3 Med. Microbiology/TB                  3914 Serology/Virology                  832-393-3983 Fax</p>
<p><b>ALL OF THE FOLLOWING INFORMATION IS REQUIRED</b></p>	
<p>Completed by _____ Date of Completion _____ Time of Completion _____</p> <p>Collected by _____ Date of Collection _____ Time of Collection _____</p> <p>SPECIMEN(S) CENTRIFUGED? YES <input type="checkbox"/> NO <input type="checkbox"/> IF YES: START TIME OF CENTRIFUGATION _____</p>	
<p>PROGRAM: <input type="checkbox"/> FAMILY PLANNING    <input type="checkbox"/> STD    <input checked="" type="checkbox"/> TB    <input type="checkbox"/> MOBILE UNIT    <input type="checkbox"/> OTHER _____</p>	
<p><b>Test Request: Please mark the appropriate box</b></p>	
<p style="text-align: center;"><b>VIROLOGY</b></p> <p>6008 <input type="checkbox"/> TP-PA</p> <p>6020 <input type="checkbox"/> RUBELLA</p> <p>6040 <input type="checkbox"/> MUMPS</p> <p>6050 <input type="checkbox"/> VZ</p> <p>6060 <input type="checkbox"/> MEASLES</p> <p>6190 <input type="checkbox"/> HERPES CULTURE</p> <p style="padding-left: 40px;">SOURCE _____</p> <p>6410 <input type="checkbox"/> HBS AG</p> <p>6430 <input type="checkbox"/> ANTI-HB<sub>s</sub></p> <p>6440 <input type="checkbox"/> ANTI-HB<sub>core</sub></p> <p>6415 <input type="checkbox"/> HCV EIA</p> <p>6419 <input type="checkbox"/> RAPID HEPATITIS C VIRUS</p> <p>6505 <input type="checkbox"/> RAPID HIV</p> <p>6509 <input type="checkbox"/> HIV 1/2 PLUS O EIA</p> <p>6320 <input type="checkbox"/> CHLAMYDIA</p> <p style="padding-left: 40px;">SOURCE _____</p> <p style="text-align: center;"><b>TOTAL NUMBER OF TUBES</b></p> <p>PLAIN RED _____ LAVENDER _____</p> <p>SST (YELLOW TOP) _____</p>	<p style="text-align: center;"><b>MEDICAL MICROBIOLOGY</b></p> <p>2106 <input type="checkbox"/> GC CULTURE</p> <p style="padding-left: 20px;"><input type="checkbox"/> ORAL                      <input type="checkbox"/> RECTAL</p> <p style="padding-left: 20px;"><input type="checkbox"/> URETHRAL                <input type="checkbox"/> CERVICAL</p> <p style="padding-left: 20px;"><input type="checkbox"/> OTHER _____</p> <p style="padding-left: 20px;"><input type="checkbox"/> APTIMA GC/CT NUCLEIC ACID AMPLIFICATION TEST</p> <p>2344/2345 <input type="checkbox"/> URETHRAL    2342/2343 <input type="checkbox"/> URINE</p> <p>2340/2341 <input type="checkbox"/> CERVICAL    2346/2347 <input type="checkbox"/> VAGINAL</p> <p style="padding-left: 20px;"><input type="checkbox"/> OTHER _____</p> <hr/> <p style="text-align: center;"><b>TB (MYCOBACTERIOLOGY)</b></p> <p>2406 <input type="checkbox"/> ACID FAST SMEAR (Fluorochrome Stain)</p> <p>2405 <input type="checkbox"/> PRIMARY AFB CULTURE</p> <p style="padding-left: 20px;"><input type="checkbox"/> SPUTUM (Natural)</p> <p style="padding-left: 20px;"><input type="checkbox"/> INDUCED</p> <p style="padding-left: 20px;"><input type="checkbox"/> OTHER _____</p> <hr/> <p style="text-align: center;"><b>IGRA (INTERFERON GAMMA RELEASE ASSAY)</b></p> <p>2412 <input checked="" type="checkbox"/> QuantiFERON® -TB Gold (In-tube)</p> <p>SPECIMEN INCUBATED? <input type="checkbox"/> YES    <input checked="" type="checkbox"/> NO</p> <p>START TIME: _____ TEMP: _____ DATE: _____</p> <p>BY: _____</p> <p>END TIME: _____ TEMP: _____ DATE: _____</p> <p>BY: _____</p>

Individuals filling out paperwork will complete QFT labels and check off areas marked in green.

Individuals drawing blood will fill out this portion of the lab request form.