

**TUBERCULOSIS COMPONENT
OF
TECHNICAL INSTRUCTIONS
FOR THE
MEDICAL EXAMINATION
OF ALIENS
IN THE UNITED STATES**



May 2008

**U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Center for Preparedness Detection and Control of Infectious Diseases
Division of Global Migration and Quarantine
Atlanta, Georgia 30333**

Table of Contents

I. INTRODUCTION.....	1
MAJOR CHANGES FROM PREVIOUS TUBERCULOSIS COMPONENT OF <i>TECHNICAL INSTRUCTIONS</i>	1
II. ROLES OF THE CIVIL SURGEON AND HEALTH DEPARTMENT	3
ROLE OF THE CIVIL SURGEON	3
ROLE OF LOCAL OR STATE HEALTH DEPARTMENT	6
III. PAST MEDICAL HISTORY	6
REVIEW OF ALL HOSPITALIZATIONS AND INSTITUTIONALIZATIONS	7
REVIEW OF ALL SERIOUS ILLNESSES AND DISABILITIES	7
REVIEW OF PREVIOUS CHEST RADIOGRAPHS, LABORATORY RESULTS, AND TREATMENT RECORDS	7
IV. REVIEW OF SYMPTOMS AND PHYSICAL EXAMINATION.....	8
REVIEW OF SYMPTOMS	8
GENERAL PHYSICAL EXAMINATION	9
V. TB DIAGNOSIS: TESTS AND REFERRALS.....	10
MANTOUX TST	10
QUANTIFERON®-TB GOLD TEST.....	12
RADIOGRAPHIC EXAMINATION OF THE CHEST	12
REQUIRED REFERRAL TO THE TB CONTROL PROGRAM OF THE LOCAL HEALTH DEPARTMENT	15
RECOMMENDED REFERRAL TO LOCAL HEALTH DEPARTMENT	16
LABORATORY SUPPORT	16
VI. CLASSIFICATION OF APPLICANTS WITH EVIDENCE OF TB.....	17
CLASS B1 - EXTRAPULMONARY TUBERCULOSIS, ACTIVE, NON-INFECTIOUS	17
CLASS B - LATENT TB INFECTION NEEDING EVALUATION FOR TREATMENT	21
CLASS B - OTHER CHEST CONDITION (NON-TB).....	22
VII. TREATMENT OF APPLICANTS WITH CLASS A TB DISEASE	23
VIII. RE-CLASSIFICATION OF PERSONS WITH CLASS A TB AFTER TREATMENT.....	23
IX. RESOURCES	24
X. APPENDICES	25
APPENDIX A PURIFIED PROTEIN DERIVATIVE STORAGE; TST ADMINISTRATION AND INTERPRETATION	25
APPENDIX B RADIOGRAPHIC FINDINGS SUGGESTIVE OF TB OR OTHER DISEASE	27
APPENDIX C REFERENCE CHARTS	30
APPENDIX D FORM I-693 SAMPLE	32

Figures

FIGURE 1. PROCESS FOR CLASSIFYING TB AND OTHER CHEST CONDITIONS.18

Tables

TABLE 1. REFERRAL TO HEALTH DEPARTMENT TB CONTROL PROGRAM BY CIVIL SURGEON15
TABLE 2. TB CLASSIFICATIONS AND SUMMARY OF APPROPRIATE RELATED ACTIONS19

I. Introduction

Major Changes from Previous Tuberculosis Component of *Technical Instructions*

This document replaces the previous version of the Tuberculosis (TB) component of the *Technical Instructions*, which was last revised in June 1991. The instructions in this document supersede all previous *Technical Instructions*, updates to the *Technical Instructions*, and memoranda and letters regarding the *Technical Instructions*, **as pertains to tuberculosis screening**. Highlights of the major changes in this version of the *TB Technical Instructions* are as follows:

- **Sputum cultures for *M. tuberculosis*, and drug susceptibility testing for positive cultures, are required for applicants with chest radiograph findings suggestive of active TB disease.** These new tests are mandatory in addition to the previously-required sputum microscopy for acid fast bacteria.
- **Applicants with Class A (either smear or culture positive) TB must complete a full course of TB treatment.** Completion of therapy is required prior to medical clearance for TB by the civil surgeon, for purposes of this examination and the United States Immigration and Citizenship Services (USCIS).
- **A chest radiograph is required for all applicants with a tuberculin skin test (TST) reaction of 5 mm or greater of induration, including pregnant (or possibly pregnant) women.** Previously, the chest radiograph could be waived for a pregnant applicant if she had a scar or other evidence of BCG vaccination and denied having any TB-related symptoms. This exception is no longer permissible. If the applicant decides to undergo a radiograph during pregnancy, the possible risks of radiation to the fetus should be explained to her and informed consent obtained, confirmed by a signed consent form. **If she wishes, the applicant may defer the radiograph until after delivery, but the civil surgeon cannot sign the medical examination form until the radiograph is performed and interpreted, and treatment for Class A pulmonary TB disease, if needed, is completed.**
- **A chest radiograph is now required for applicants with a TST reaction of less than 5 mm of induration (including no induration) who have:**
 - **Signs or symptoms** consistent with active TB disease.
 - **Immunosuppression** for any reason (e.g., HIV infection; immunosuppressive therapy equivalent to or greater than 15 mg/day of prednisone for one month or longer; history of organ transplantation).

Technical Instructions for Civil Surgeons

- **Definitions of chest radiographic findings** that are suggestive of TB disease are provided to assist the civil surgeon in determining the proper TB classification. These descriptions are presented in **Appendix B**.
- **A new TB classification (Class B: Latent TB Infection Needing Evaluation for Treatment)** should be used for all applicants who are recent arrivals to the United States (less than 5 years) from countries with a high TB prevalence, with a Mantoux TST reaction of 10 mm or greater of induration, and no evidence of TB disease. See Section V for other conditions for which referral for evaluation for treatment of latent TB infection is recommended. The civil surgeon should pro-actively contact the TB Control Program of the local health department to identify specific sources of treatment for latent TB infection and make the appropriate referral.
- **Class B3** (consistent with old, healed TB disease) **has been eliminated**.
- **TST Instructions:** **Appendix A** includes instructions for the proper procedures that civil surgeons must follow in the storage of purified protein derivative (PPD), and the administration and interpretation of the TST.

II. Roles of the Civil Surgeon and Health Department

These roles are summarized here and will be explained in more detail later in the document.

Role of the Civil Surgeon

The United States Citizenship and Immigration Services (USCIS) in the U.S. Department of Homeland Security designates civil surgeons. Civil surgeons must perform the medical examination according to the procedures prescribed in the *Technical Instructions*. The description of the examination at the beginning of the I-693 form distributed by USCIS may differ somewhat from these *Technical Instructions*. With regard to the medical examination, the *Technical Instructions* take precedence.

At a minimum, civil surgeons, with respect to TB, should perform the following tasks:

- **Establish a working relationship with the TB Control Program** of the local health department in order to report suspected and confirmed TB cases as mandated by law and perform required and recommended referrals (pp. 15-16). The I-693 form (Appendix D) will aid in these referrals.

- **Verify applicant's identity.**

The civil surgeon must confirm the applicant's identity by comparing facial appearance and signature with an official government document containing a recent photograph and signature, such as a passport, driver's license, or other type of identity card. The applicant's identity must be verified in the same manner when the applicant is referred to another facility for a chest radiograph or laboratory test.

- **Perform initial examination**, including medical history, review of systems, physical examination, and especially review of previous chest radiographs and TST results. One exception to the complete medical examination is for refugees, who generally need only vaccine administration in order to receive medical clearance. However, if a refugee entered the United States with a Class A condition, a full medical examination is required, regardless of whether the Class A condition was initially evaluated after U.S. entry.

Technical Instructions for Civil Surgeons

- **Administer Mantoux TST (See Appendix A).**

A Mantoux TST must be performed on all applicants who are 2 years of age and older, as well as applicants less than 2 years of age if there is evidence of contact with a person known to have TB or other reason to suspect TB.

There are two situations in which the TST is not required. Applicants providing **written documentation** (with a health-care provider's signature) of a TST reaction of 5 mm or greater of induration or applicants with a history of a severe reaction with blistering to a prior TST may be excluded from this requirement. Applicants in these two groups must undergo a chest radiograph.

- **Schedule a return visit** for reading the TST in 48–72 hours.

- **Schedule a chest radiograph.** Applicants with one or more of the following conditions must have a chest radiograph to evaluate for TB disease:

- TST reaction of 5 mm or greater of induration.
- TB signs or symptoms, regardless of size of TST reaction (including 0 mm reaction).
- Immunosuppression for any reason (e.g., HIV infection; immunosuppressive therapy equivalent to or greater than 15 mg/day of prednisone for one month or longer; history of organ transplantation) regardless of size of TST reaction (including 0 mm reaction).

The chest radiograph must be performed according to the specifications listed in Section V.

- **Refer applicants** for further evaluation and treatment, if needed.

Civil surgeons must refer applicants with abnormal chest radiographs suggestive of active or inactive TB disease to the TB Control Program of the local health department for further evaluation. In the United States, TB is sufficiently uncommon and its treatment is sufficiently complex that only an expert should treat it. Public health departments have considerable experience in dealing with such difficult issues as patient non-adherence, drug resistance, and HIV co-infection and most use directly observed therapy (DOT) to ensure that people with TB continue their therapy until completion. For these reasons, applicants with suspected TB disease should receive their treatment from providers with considerable experience and expertise with TB patients, such as health departments or expert clinicians under contract to health departments.

Technical Instructions for Civil Surgeons

It is recommended that applicants with no evidence of TB disease who are recent arrivals to the United States (within 5 years) from countries with a high TB prevalence and who have a TST reaction of 10 mm or greater of induration be referred to the health department TB Control Program for evaluation for treatment of latent TB infection, regardless of age. In some circumstances, applicants with a TST reaction of 5 mm or greater of induration and no evidence of active TB disease should be evaluated for treatment of latent TB infection (see Section V). **Civil surgeons should contact the TB Control Program of the local health department to ascertain local policies and procedures for treating such applicants. In some areas, the TB Control Program may be able to provide treatment. In other areas, TB Control Programs may be able to provide technical assistance and referral to other health-care providers in the community who agree to evaluate and treat applicants for latent TB infection.**

Civil surgeons should educate applicants about the procedures involved in the medical examination and the necessity for follow-up diagnostic and treatment services that may need to be carried out in collaboration with the health department TB Control Program. Applicants should clearly understand what is expected of them and why they may need to go to a health department for additional diagnostic testing or treatment. Finally, applicants should be told that the civil surgeon's medical examination cannot be completed until the results of follow-up evaluation by the health department TB Control Program are available.

- **Use the TB Reference Charts in Appendix C for a review of risk factors for progression of TB infection to TB disease, TB signs and symptoms in both adults and children, and TB classifications.**
- **Record examination results on the USCIS I-693 form.**

Civil surgeons are responsible for reporting the results of the TB component of the medical examination and all required tests on the I-693 form (Appendix D). The completed form can be either typed or handwritten, but must be clearly legible. If the applicant has any TB condition other than Class A TB (defined as smear-positive and/or culture-positive) disease, the civil surgeon should sign the form in the space provided for his/her signature after evaluation is completed.

Applicants identified with Class A TB (either smear or culture positive) cannot be medically cleared until they have completed a recommended course of treatment, which is a minimum of 6 months in duration. Once an applicant has completed the TB-related follow-up requirements, and has been released from the treating physician back to the civil surgeon, the applicant must sign and date the form in the space provided in the presence of the civil surgeon. The civil surgeon should **not** sign and date the form until the applicant has met all TB-related follow-up requirements.

Role of Local or State Health Department

Publicly funded TB Control Programs have overall responsibility for planning, implementing, and evaluating TB prevention and control programs in their respective areas. By law, civil surgeons must promptly report all confirmed and suspected TB cases to state or local health departments to ensure that applicants are started on the appropriate drug regimen and that a thorough contact or source case (for pediatric applicants) investigation is initiated. In addition to case-finding, surveillance, and patient care, health departments are responsible for reviewing appropriate laws and regulations to support TB control activities, building networks and coalitions with voluntary and community-based organizations, providing expert consultation to local institutions and practitioners, developing an overall TB control strategy, and ensuring adequate funding for staff to carry out TB control objectives.

In regard to the TB evaluation of aliens referred to civil surgeons, health departments may be able to assist the civil surgeon by:

- Providing or arranging training for civil surgeons or their staff in the appropriate technique for administering and reading the TST.
- Providing or recommending experienced radiology departments and radiologists to perform and interpret chest radiographs, respectively.
- Evaluating applicants with abnormal radiographs suggestive of TB disease.
- Performing or referring mycobacteriology laboratory work (to include smears, cultures, and drug susceptibility testing) on specimens from applicants with suspected TB.
- Providing medical management, treatment (including DOT), contact investigation for applicants found to have infectious TB, and source case investigations for pediatric cases diagnosed with TB disease.
- Providing or facilitating the evaluation and treatment of applicants found to have latent TB infection.

A list of state TB control offices can be found at the Centers for Disease Control and Prevention's (CDC) Division of TB Elimination website: <http://www.cdc.gov/tb/pubs/tboffices.htm>. Each state office can provide TB program contact information for every local health department in its jurisdiction.

III. Past Medical History

The primary purpose of obtaining past medical history is to assess whether an applicant has:

- A history consistent with a past episode of TB disease or latent TB infection.
- Prior exposure to someone with TB disease.
- A medical condition that increases the likelihood that TB infection will progress to TB disease.

Review of All Hospitalizations and Institutionalizations

The civil surgeon must obtain a history of each time an applicant was **hospitalized or resided in a nursing home, refugee camp, homeless shelter, jail, or prison**. It is important to ascertain the reasons for each hospitalization, especially if it was due to a pulmonary condition such as TB or pneumonia. Residence in crowded conditions, such as in the places noted above, can increase a person's risk of becoming infected and eventually developing TB disease.

Review of All Serious Illnesses and Disabilities

The civil surgeon must ask the applicant whether he or she has ever been diagnosed with or treated for TB infection or disease. Any applicant who has had TB infection or disease previously must also be questioned about the date and place of diagnosis, treatment method (self-administered or DOT), specific drugs prescribed, duration of treatment, whether treatment was considered successful, and the criteria for documentation of success.

The civil surgeon must question each applicant about any previous medical history of prolonged illness or disability, especially respiratory disease. The applicant must also be questioned about risk factors that increase the likelihood that latent TB infection will progress to disease. These include:

- HIV infection
- Recent infection with *Mycobacterium tuberculosis* (within the past 2 years), particularly in infants and young children
- Medical conditions* known to increase the risk for disease if infection occurs
- Injection of illicit drugs or use of other high-risk substances
- A history of inadequately treated TB
- Chest radiograph findings suggestive of previous TB

Review of Previous Chest Radiographs, Laboratory Results, and Treatment Records

If an applicant indicates a prior history of TB disease, the civil surgeon must make every effort to obtain and review previous chest radiographs and laboratory and treatment records. Prior chest radiographs provide an important baseline to compare with the current radiograph. Laboratory records may indicate the severity and length of disease, as well as drug susceptibility. The treatment records can provide information on the adequacy of previous treatment and the likelihood of cure. If the applicant was previously diagnosed with TB disease in the United States, the civil surgeon should contact the appropriate state or local health department for a copy of the applicant's medical records.

* Diabetes mellitus; silicosis; prolonged corticosteroid therapy and other immunosuppressive therapy; cancer of the head and neck; hematologic and reticuloendothelial diseases; end-stage renal disease; intestinal bypass or gastrectomy; chronic malabsorption syndromes; or low body weight.

IV. Review of Symptoms and Physical Examination

Review of Symptoms

Most patients with TB disease will have one or more symptoms. TB symptoms are gradual in onset and can last from weeks to months. **However, the absence of symptoms does not preclude the diagnosis of TB disease.** The civil surgeon must ask specifically about all of the following signs and symptoms:

Generalized or Systemic Signs and Symptoms. These include fever, chills, night sweats, fatigue, loss of appetite, and weight loss.

Pulmonary Signs and Symptoms. It is critical to identify pulmonary TB disease, because it can be transmissible and therefore is of key importance to the public's health. Pulmonary signs and symptoms can include one or more of the following:

- Prolonged cough (3 or more weeks) with or without sputum production.
- Hemoptysis (blood in sputum).
- Pleuritic (inspiratory) chest pain.

Signs and Symptoms of Extrapulmonary TB disease. Approximately 15% to 20% of TB cases reported in the United States are solely extrapulmonary. The civil surgeon should consider extrapulmonary TB in the differential diagnosis of ill applicants who have systemic symptoms and who are at high risk for TB. This condition can be more challenging to diagnose because signs and symptoms are specific to the site of the disease. For example, TB of the spine can cause back pain, TB of the kidney can cause blood in the urine, and TB of the lymph nodes can result in lymphadenopathy (enlargement of the lymph nodes, which may be painful if enlargement occurs rapidly). The majority of persons with extrapulmonary TB have concurrent pulmonary TB.

Signs and Symptoms in Children. The clinical expression of disease caused by TB is different in children than in adults. In children, clinical manifestations can be minimal, and range from more generalized findings, such as fever, night sweats, growth delay, and weight loss, to more specific findings such as cough and dyspnea (difficulty breathing). Children are more prone to extrapulmonary TB, such as meningitis, and disease of the middle ear and mastoid, lymph nodes, bones, joints, and skin. These are examples of pediatric signs and symptoms:

- Generalized: Failure to thrive, malnutrition, weight loss, lethargy, pallor, night sweats, fever, tachycardia (rapid heart rate).
- Pulmonary: cough, tachypnea (rapid respiratory rate), dyspnea, wheezing.

Technical Instructions for Civil Surgeons

- Extrapulmonary: meningeal signs, lymphadenopathy (cervical, axillary), splenomegaly (enlarged spleen), hepatomegaly (enlarged liver).

General Physical Examination

The civil surgeon should conduct a complete physical examination of each applicant to evaluate for TB disease or a condition that might increase the risk of progression from infection to disease, if infected. The result of the physical examination, by itself, cannot confirm or exclude TB, but it can provide valuable information about an applicant's overall condition and other factors that may affect TB treatment, if treatment proves necessary.

General Appearance. An applicant with TB can be ill-appearing, ashen or pale, have wasting of muscles or unexplained weight loss, or appear well.

Directed Physical Examination. The civil surgeon must conduct a physical examination of the applicant's respiratory system ((oral pharynx and chest) to evaluate for findings consistent with pulmonary TB as well as other factors that need be taken into consideration during treatment. In a patient with pulmonary TB disease, the examination of the chest could reveal:

- Signs of consolidation, such as flatness or dullness to percussion, crackles, asymmetric breath sounds, increased vocal resonance (bronchophony, whispered pectoriloquy, and egophony), or increased tactile fremitus.
- Evidence of pleural effusion, such as dullness to percussion, decreased breath sounds, and decreased tactile vocal fremitus.

Other areas should also be examined to evaluate for evidence of extrapulmonary TB (such as lymphadenopathy or spinal tenderness and deformity).

V. TB Diagnosis: Tests and Referrals

Mantoux TST

The purpose of the TST is to identify applicants infected with *M. tuberculosis* so they can be further evaluated for active disease. The **Mantoux method** is the standard, most reliable **TST**, and **is required for this examination**. Multiple puncture tests (e.g., Tine or Heaf) are not acceptable and are not to be used for this examination.

Proficiency in applying and reading the TST requires training and ongoing, continual practice. One study of civil surgeon practices in several areas of the country revealed lower than expected tuberculin positive rates (average 16%), among persons born outside the United States who were applying for legal permanent residence, compared with 35% to 53% in previous studies. The study also revealed that tuberculin positive rates varied by civil surgeon and by area, for people from the same country and with the same demographic characteristics. (Saraiya M, Cookson ST, Tribble P, et al. Tuberculosis screening among foreign-born persons applying for permanent US residence. *American Journal of Public Health* 2002; 92(5): 826-9.) These findings suggest that difficulties with the proper administration and interpretation of the TST could cause the unexpectedly low rates of tuberculin positive rates.

The actual technique for administering and reading the TST is relatively simple, yet it must be carried out meticulously to yield meaningful results (see Appendix A). All health care workers who administer and read the TST must be formally trained in the proper technique. The administration and interpretation of the TST can be delegated to a trained health-care worker, but the civil surgeon is responsible for the test results and must continually ensure that the worker has been sufficiently trained and remains proficient. The civil surgeon can contact his or her local or state health department TB Control Program for assistance in assessing staff proficiency in skin testing and in providing or arranging for training. **See Appendix A for information on how to order the free Mantoux Tuberculin Skin Test Training Materials Kit (videotape, facilitator guide, ruler) available from CDC.**

People for Whom a TST is Required and Specific Exceptions to the TST

1. A TST must be performed on all applicants 2 years of age or older, regardless of pregnancy or previous immunization with BCG vaccine. There are two exceptions:
 - Applicants who have **written documentation** of a previous TST reaction of 5 mm or greater of induration (with the signature of a health-care provider) need not be retested. In such a case, the applicant will need a chest radiograph to evaluate for TB disease. **A verbal history of a positive TST reaction from the applicant is not acceptable.**
 - Applicants who report a severe reaction with blistering secondary to previous tuberculin skin testing need not be retested. In such a case, the applicant will need a chest radiograph to evaluate for TB disease.

Technical Instructions for Civil Surgeons

If the TST is not administered for one of these two reasons, the civil surgeon should not check the box next to “Tuberculin Skin Test” in Part 2, Section 2A of the I-693 form. Instead, the civil surgeon should clearly state the reason for the exception in the “Remarks” portion of Section 2A.

If either exception exists, the civil surgeon should follow the recommendations and requirements for referral of applicants to the health department (in Table I of this section) based on the prior skin test result and the current chest radiograph reading.

2. Applicants younger than 2 years of age are required to have a tuberculin skin test if there is evidence of contact with a person known to have TB or other reason to suspect TB.

Bacille Calmette-Guérin (BCG) Vaccination and TST

- Because most applicants have lived in areas where TB transmission is common, the civil surgeon must perform the TST on all applicants, regardless of a history or evidence of BCG vaccination, unless one of the two exceptions to TST administration previously noted exists.
- There are several reasons for assuming that a large reaction (10 mm or greater of induration) to tuberculin is **not** due to BCG vaccination:
 1. Tuberculin test conversion rates after BCG vaccination may be much less than 100%.
 2. Tuberculin sensitivity tends to wane over time after the vaccination.
 3. The mean reaction size among vaccinated persons is often less than 10 mm of induration.
- Because many BCG-vaccinated applicants have lived in areas of the world where TB transmission frequently occurs, perform a chest radiograph on all such applicants with a skin test reaction of 5 mm or greater of **induration**.

Administration and Interpretation of the TST

Details regarding the proper procedures to be followed in administering and interpreting the TST are provided in Appendix A.

QuantiFERON®-TB Gold Test

The QuantiFERON®-TB Gold (QFT-G) test is a recently introduced blood test that has been approved by the Food and Drug Administration as an aid for detecting *M. tuberculosis* infection. The assay measures a component of cell-mediated immune reactivity to *M. tuberculosis* in fresh whole blood. It requires only one visit to the doctor, can be completed faster than a skin test, and is less subject to reader bias and error. However, the role of QFT-G in targeted testing has not yet been fully defined and the test currently requires laboratory capability that is not widely available (Centers for Disease Control and Prevention. Guidelines for Using the QuantiFERON®-TB Gold Test for Detecting *Mycobacterium tuberculosis* Infection, United States. MMWR 2005; 54[No. RR-15]:49-55.) When changes to these guidelines occur, an update will be posted at <http://www.cdc.gov/ncidod/dq/updates.htm>.

Radiographic Examination of the Chest

Applicants for Whom a Chest Radiograph Is Required

A chest radiograph is required for all applicants who:

- Have a TST reaction of 5 mm or greater of induration.
- Are immunosuppressed, regardless of the TST result, including those who are:
 - HIV infected
 - Receiving the equivalent of 15 mg/day or more of prednisone for at least one month
 - Have a history of organ transplantation.
- Have signs or symptoms of active TB disease, regardless of the TST result.

Chest radiographs are of critical importance in the diagnosis of TB, because pulmonary TB, the most common form of the disease, is transmissible. Although findings on a single radiograph cannot confirm the diagnosis of TB, they do determine the need for further evaluation by the local health department TB Control Program.

A chest radiograph is required for all applicants with a tuberculin skin test (TST) reaction of 5 mm or greater of induration, including pregnant (or possibly pregnant) women. Previously, the chest radiograph could be waived for a pregnant applicant if she had a scar or other evidence of BCG vaccination and denied having any TB-related symptoms. This exception is no longer permissible. If the applicant decides to undergo a radiograph during pregnancy, the possible risks of radiation to the fetus should be explained to her and informed consent obtained, confirmed by a signed consent form. If she wishes, the applicant may defer the radiograph until after delivery, but the civil surgeon cannot sign the medical examination form until the radiograph is performed and interpreted, and treatment for Class A pulmonary TB disease, if needed, is completed.

Technical Instructions for Civil Surgeons

The purposes of the chest radiograph are to:

- Determine if there are findings suggestive of active or inactive pulmonary TB disease (e.g., cavities, infiltrates, effusions, nodules, or linear opacities).
- Evaluate for pulmonary TB disease in a person who has evidence of extrapulmonary TB disease.
- Check for any other abnormalities in the thorax, such as cardiomegaly (an enlarged heart).

Prior to the chest radiograph, the civil surgeon should:

- Instruct the applicant to bring all previous chest radiographs to the civil surgeon's office for comparison with the current study.
- Examine all available previous chest radiographs and reports for any evidence suggestive of past TB disease or other conditions that might increase the risk of progression from latent TB infection to TB disease (e.g., silicosis).
- Indicate on the chest radiograph requisition that there is a high suspicion for TB, include pertinent information based on review of prior radiographs and reports, and send prior radiographs and reports for comparison, to the physician interpreting the current study
- Order a PA view for applicants ≥ 10 years of age. Frontal (AP or PA) and lateral views are required for children aged 2 through 9 years. If radiographs are obtained on children less than 2 years of age, frontal and lateral views are also required. Additional views (e.g., coned apical lordotic, or a lateral view in adults) may be obtained as necessary.

The radiographer (radiology technologist) should:

- Verify the applicant's identity by comparing facial appearance and signature with an official government document that contains the applicant's recent photograph and signature.
- Protect the gonads of all applicants under 55 years of age, male and female, with wrap-around lead shielding.
- Ask female applicants of childbearing age about the date of the first day of the last menstrual period and about possible pregnancy. If needed, follow the instructions for pregnant applicants on the previous page, and provide shielding as noted below.
- Protect the abdomen and pelvis of pregnant women undergoing chest radiographs with double-layer, wrap-around lead shields.

Requirements for the Standard Frontal Chest Radiograph

- The film size must be large enough to include the entire thorax, including both lung apices and costophrenic angles. For digital images printed on film, the image size must be set at 100%.
- Ten posterior rib sets, visible through the lungs, indicate sufficient inspiration.
- The level of penetration should be set so that 1) the lung markings behind the heart can be visualized by the reader, 2) the lung markings elsewhere in the lung are visible without a “hot” light, and (3) the thoracic spine disc spaces are barely apparent.
- The applicant’s name, plus the facility name and date of examination, must be permanently affixed to the film.
- Photofluorograms are not acceptable.

Interpretation of the Chest Radiograph

- Previous chest radiographs should be obtained, if available, and compared with the current study.
- The study should be interpreted by a radiologist or other qualified physician who is trained and experienced in reading chest radiographs demonstrating TB or other diseases of the lung.
- The radiograph should be read with a high suspicion for TB.
- The film quality should be assessed with emphasis on patient positioning, level of penetration, and presence of artifacts. The presence of any artifacts, including those associated with the film, cassette, processor, or clothing, should be noted because these factors can reduce the discriminative value of the film.
- Chest radiographs not of sufficient diagnostic quality must be repeated.

Specific descriptions of the radiographic findings can be found in [Appendix B](#). Please note that the radiographic presentation of children with pulmonary TB can be quite distinct from that of adults.

Required Referral to the TB Control Program of the Local Health Department

All applicants with an **abnormal chest radiograph suggestive of active or inactive TB disease** should be referred to the TB Control Program of the local health department for further evaluation. Applicants with clinical signs or symptoms suggestive of TB disease should also be referred regardless of TST result or chest radiograph findings. **If the applicant appears very ill and TB is suspected, the referral should be made immediately so that there is no delay in treatment.** At the time of referral, include in Part 3 of the I-693 form the TST and CXR results, any signs or symptoms, the date of U.S. arrival, and reason for referral.

Requirements and Recommendations for Referral to Health Department TB Control Program	
Required referral to HD	<ul style="list-style-type: none"> • Chest radiograph suggestive of TB disease (active or inactive) <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Signs or symptoms of TB, regardless of TST result or chest radiograph findings
Recommended referral to HD for evaluation for treatment of latent TB infection	<ul style="list-style-type: none"> • TST ≥ 10 mm <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • TST ≥ 5 mm in: <ul style="list-style-type: none"> • an HIV-infected person • a recent contact of a TB patient • a person with a history of organ transplantation • any immunosuppressed person

Table 1. Referral to Health Department TB Control Program by Civil Surgeons

The health department TB Control Program will determine whether the applicant has TB disease and needs treatment. For applicants requiring referral, the civil surgeon must not classify, issue medical clearance for TB, or sign the I-693 form until the applicant returns from the local health department with documentation of the results of his or her TB evaluation. **A diagnosis of infectious pulmonary TB disease (Class A) will prevent immediate medical clearance for TB. Applicants diagnosed with Class A pulmonary TB disease must complete a recommended course of treatment (minimum of 6 months) before the civil surgeon can medically clear them for TB for the purposes of USCIS.**

Recommended Referral to Local Health Department

CDC and the American Thoracic Society recommend that foreign-born people in the United States who are recent arrivals (within 5 years) from high TB prevalence countries, who have a positive TST (reaction of 10 mm or greater of induration) and a normal chest radiograph be considered for treatment of latent TB infection, regardless of age.

Foreign-born persons with TST reactions of only 5 mm who have other risk factors should also be referred for evaluation for treatment of latent TB. Specifically, when the applicant is HIV-infected, is a recent contact to a TB case, has a transplanted organ, or has received the equivalent of 15 mg/day or more of prednisone for at least one month, 5 mm or greater of induration is the TST reaction size at which the applicant should be evaluated for treatment of latent TB infection. These factors further increase the risk of developing TB disease.

Some applicants may be at risk for progression of TB infection to TB disease for more than one reason (e.g., recent arrival from a high TB prevalence country and diabetic; see Appendix C).

The civil surgeon should contact the TB Control Program of the local or state health department in his or her area to ascertain the local criteria for treatment for latent TB infection and the local health department's position regarding acceptance of referrals of such applicants from civil surgeons. Some health departments with large numbers of TB patients may lack the resources to follow up on all people with latent infection because they are focusing their efforts on higher-priority active TB cases and their contacts. If a health department is not able to accept a referral, the civil surgeon may ask if the health department is able to provide treatment consultation for an applicant with latent TB infection. The health department may also have arrangements with other health-care providers in the community (e.g., community-based health centers or managed care organizations) that may be able to provide such treatment. **Once active disease has been excluded, an applicant with latent TB infection can be medically cleared for TB for the purposes of USCIS, regardless of whether treatment for latent TB infection has been recommended or completed.**

Laboratory Support

All mycobacteriology laboratory work should be performed by the local or state health department or by a private laboratory that is approved and recommended by the health department. An applicant with an abnormal chest radiograph(s) suggestive of active TB must provide three sputum specimens on separate days within a 7-day time frame. The collection of the three sputa must be supervised. The health department TB Control Program will determine whether other applicants should submit sputa.

All three sputum specimens must be examined for the presence of acid-fast bacilli (AFB) **AND** cultured for *M. tuberculosis*. Specimens positive for *M. tuberculosis complex* should be tested for drug susceptibility, and susceptibility results should be promptly forwarded to the health department. Drug resistance must be identified as early as possible in order to ensure appropriate treatment. Drug susceptibility testing should be repeated for applicants who do not respond adequately or who have a positive culture despite 2 months of therapy.

VI. Classification of Applicants with Evidence of TB

The civil surgeon is responsible for medically examining and assigning a TB classification for each applicant. Most TB classifications and the actions appropriate to those classifications are self-explanatory. For example, applicants with abnormal chest radiographs suggestive of active or inactive TB disease must be referred to the local health department TB Control Program for further evaluation. This includes applicants who potentially fall into the Class A- Pulmonary TB Disease, Active, Infectious category; the Class B1-Pulmonary TB, Active, Non-infectious category; and the Class B2-Pulmonary TB, Inactive category.

Please see Section VII for the treatment of applicants with Class A TB disease and Section VIII for the re-classification of persons with Class A TB disease after treatment.

However, the following three conditions may need more clarification, and these are covered in detail in the following paragraphs:

- Class B1-Extrapulmonary TB Disease, Active, Non-infectious
- Class B-Latent TB Infection Needing Evaluation for Treatment
- Class B-Other Chest Condition (non-TB)

Class B1 - Extrapulmonary Tuberculosis, Active, Non-infectious

Applicants with Class B1 - Extrapulmonary TB, Active, Non-infectious have:

- Radiographic or other evidence of extrapulmonary disease.
- No evidence of pulmonary TB radiographically or clinically.

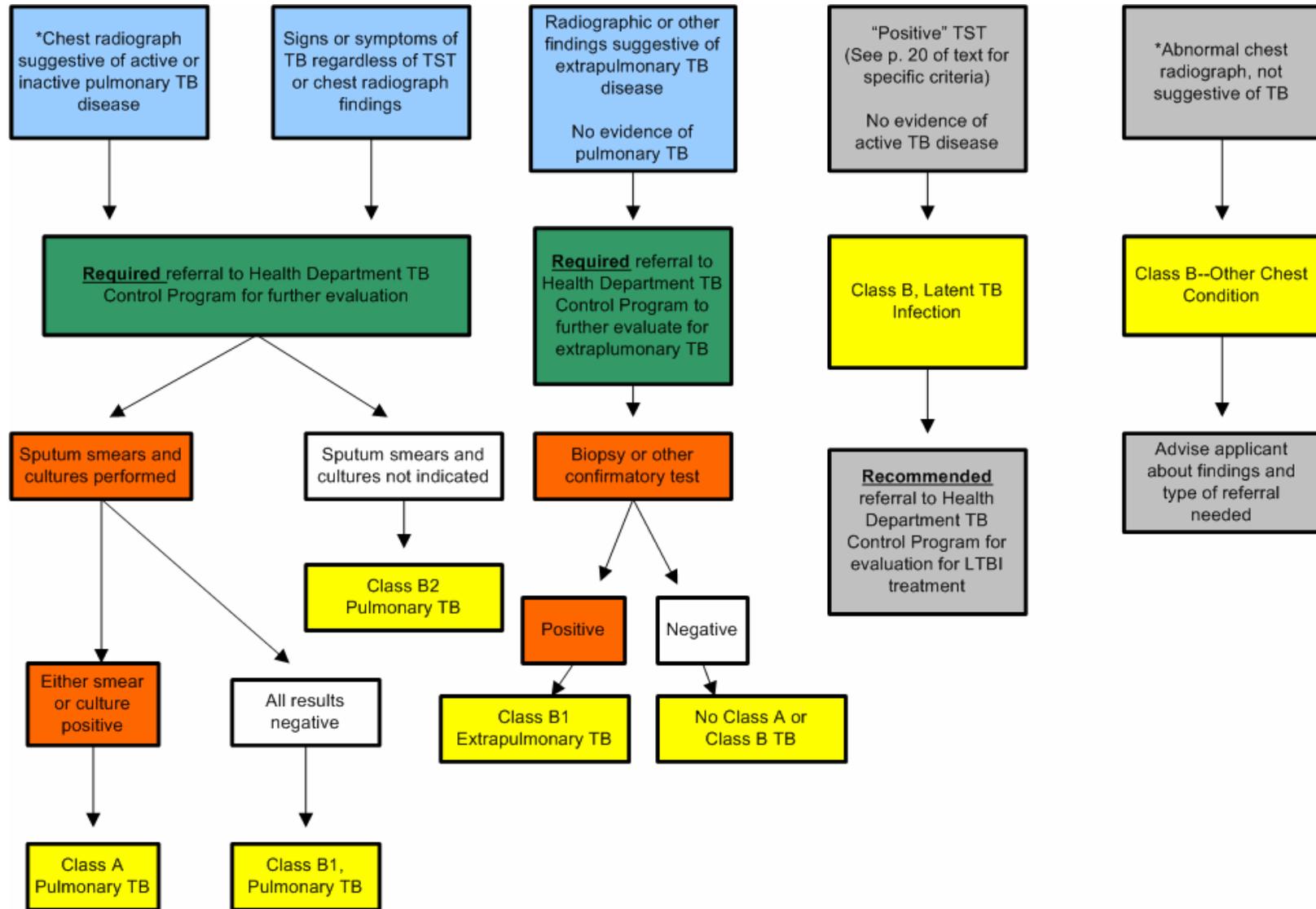
Initial Actions to be taken by the civil surgeon:

- Explain to the applicant that he or she may need to complete a full course of drug therapy (at least 6 months in duration).
- Assure the applicant that this treatment will not preclude medical clearance for USCIS.
- Refer the applicant to the health department as a suspected extrapulmonary TB case.

Actions by the civil surgeon after evaluation by health department TB Control Program:

- When the extrapulmonary TB diagnosis is confirmed in writing through the health department, check the **Class B1 Extrapulmonary TB** box on the I-693 form and sign the “Civil Surgeon Certification” section (Part 5) of the I-693 form, indicating that the applicant is free from infectious TB at this time and is medically cleared for TB for the purposes of USCIS.

Technical Instructions for Civil Surgeons



*Chest radiograph performed if TST ≥ 5mm induration. TST performed on all applicants ≥ 2 years of age.

Figure 1. Process for Classifying TB and Other Chest Conditions. This classification system is designed to assist state and local health department TB Control Programs to prioritize their efforts to most effectively diagnose and treat applicants with TB conditions.

TB Classifications and Actions

Classification	Criteria	Refer to Health Dept. (HD) for Further Work-Up	Check Classif. Box on I-693 ¹	Clear Applicant for TB; Sign I-693	Re-Classify After Treatment
Class A–Pulmonary TB Disease, Active, Infectious	<ul style="list-style-type: none"> Abnormal chest radiograph(s) suggestive of active TB disease (See Appendix B) Either one or more sputum smears positive for AFB, or one or more cultures positive for <i>M.tuberculosis complex</i> 	Required ²	Yes	No	Yes ³
Class B1–Pulmonary TB, Active, Non-infectious	<ul style="list-style-type: none"> Abnormal chest radiograph(s) suggestive of active TB disease (See Appendix B) Three sputum smears negative for AFB and three cultures negative for <i>M. tuberculosis complex</i> 	Required ²	Yes	Yes	No
Class B1–Extrapulmonary TB, Active, Non-infectious	<ul style="list-style-type: none"> Radiographic or other evidence of extrapulmonary TB disease No pulmonary TB 	Required ⁴	Yes	Yes	No
Class B2–Pulmonary TB, Inactive	<ul style="list-style-type: none"> Abnormal chest radiograph(s) suggestive of inactive TB disease (See Appendix B) No sputum smears or cultures required⁵ 	Required ²	Yes	Yes	No
Class B–Latent TB Infection Needing Evaluation for Treatment (LTBI)	<ul style="list-style-type: none"> TST reaction ≥ 10 mm in recent U.S. arrivals (see text) TST reaction ≥ 5 mm in specific groups (see text) No evidence of active TB disease See text for criteria of other LTBI category 	Recommended ⁶	Yes	Yes	No
Class B– Other Chest Condition (non-TB)	<ul style="list-style-type: none"> Abnormal chest radiograph, not suggestive of TB disease, needing follow-up (see Appendix B) 	N/A ⁷	Yes	Yes	No

If the applicant has TB signs or symptoms, he or she should be referred to the health department TB Control Program for further evaluation regardless of TST result or chest radiograph appearance.

Table 2. TB Classifications and Summary of Appropriate Related Actions. For the first four conditions, classification cannot be determined until evaluation of applicant by the Health Department TB Control Program has been completed.

¹ After evaluation by civil surgeon (and referral to Health Department TB Control Program, if required) is completed. See Appendix D

² Refer to health department TB Control Program for work-up of suspicious chest radiograph

³ After written confirmation of complete TB treatment on I-693 form, classification is changed in this special circumstance to B2

⁴ Make required referral to health department TB Control Program for further evaluation and, if needed, initiation of CDC/ATS/IDSA-recommended drug regimen for extrapulmonary TB

⁵ If health department TB Control Program decides to perform sputum smears and cultures, categorize as Class A or B1 depending on results

⁶ After discuss resources with health department TB Control Program

Technical Instructions for Civil Surgeons

⁷ See text

Class B - Latent TB Infection Needing Evaluation for Treatment

Applicants with Class B - Latent TB Infection Needing Evaluation for Treatment have:

- A TST reaction of 10 mm or more of induration, and a history of recent arrival (within the last 5 years) in the United States from a high-prevalence country

And

- No evidence of active TB disease.

OR

- A TST reaction of 5 mm or more of induration if the applicant is in one of these groups:
 - HIV-infected persons
 - Recent contacts of TB cases
 - Patients with transplanted organs
 - Other immunosuppressed patients (receiving the equivalent of 15 mg/day or more of prednisone for at least one month)

And

- No evidence of active TB disease.

OR

- A TST reaction of 10 mm or more of induration if the applicant is in one of these groups:
 - Persons with clinical conditions that place them at high risk (See Appendix C)
 - Injection drug users
 - Residents and employees of high-risk congregate settings (e.g., correctional facilities, nursing homes, homeless shelters, hospitals, or other health-care facilities)
 - Mycobacteriology laboratory personnel
 - Children <4 years of age, or children and adolescents exposed to adults in high-risk categories

And

- No evidence of active TB disease.

Technical Instructions for Civil Surgeons

An applicant may fall into more than one risk category for progression of TB infection to TB disease. (e.g., may be a recent arrival from a country with a high TB prevalence and have a clinical condition such as diabetes).

Actions to be taken by the civil surgeon:

- Check the **Class B, Latent TB Infection** box on the I-693 form.
- Sign the “Civil Surgeon Certification” section (Part 5) of the I-693 form, indicating that the applicant is free of infectious TB at this time.
- Explain to the applicant that the health department may recommend that he or she complete a full course of treatment for latent TB infection, but that the applicant is medically cleared for TB for the purposes of USCIS.
- It is recommended that the civil surgeon refer the applicant to the local health department TB Control Program or other health-care provider (depending on previous agreement with health department) for evaluation for treatment of latent TB infection. Indicate TST induration, and specific risk factor(s) for progression to TB disease.

Class B - Other Chest Condition (non-TB)

*Applicants with **Class B - Other Chest Condition (non-TB)** have:*

An abnormal chest radiograph or a series of chest radiographs suggestive of disease that is not TB (see Appendix B) in an applicant with no clinical signs or symptoms of active TB.

Actions to be taken by the civil surgeon:

- Check the **Class B, Other Chest Condition (non-TB)** box on the I-693 form and specify condition (e.g. cardiomegaly [enlarged heart], scoliosis in a child) in space below box.
- Sign the “Civil Surgeon Certification” section (Part 5) of the I-693 form, indicating that the applicant is free of infectious TB at this time, and is medically cleared for TB for the purposes of USCIS.
- Advise the applicant about the findings and the type of medical referral needed.

VII. Treatment of Applicants with Class A TB Disease

If the TB Control Program of the local health department confirms Class A TB (either smear or culture positive), the health department should treat and manage the TB disease. TB treatment is complex and effective management requires experience and expertise. Health department TB Control Programs have access to TB experts and other resources to deal with the potential obstacles associated with curing TB patients, such as non-adherence to therapy, drug resistance, adverse reactions to medication, and HIV co-infection. Health departments are ultimately responsible for ensuring that people with TB in the community are promptly started on and complete appropriate drug regimens, and for conducting thorough contact investigations.

In all 50 states, the civil surgeon is legally obligated to report all people with suspected or confirmed TB disease to the local or state health department. The civil surgeon who wishes to treat an applicant for TB disease should do so in close collaboration and consultation with the TB Control Program of the local or state health department. Applicants with suspected TB disease should be started on a treatment regimen recommended by CDC, the American Thoracic Society (ATS), and the Infectious Diseases Society of America (IDSA). These recommendations are available on the Internet at URL: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5211a1.htm>.

VIII. Re-Classification of Persons with Class A TB after Treatment

An applicant with Class A TB must complete a CDC/ATS/IDSA recommended course of anti-TB treatment. The minimum duration of treatment is 6 months. When treatment has been completed and the applicant is no longer infectious, a representative of the health department should sign the “Referral Evaluation” section (Part 4) of the I-693 form, indicating that the applicant has complied with the recommended health follow-up. When the applicant returns to the civil surgeon’s office, the civil surgeon should:

- Cross out the initial Class A diagnosis with a single stroke, and initial and date the change (civil surgeon should indicate that applicant was initially Class A).
- Change the applicant's status to **Class B2 Pulmonary TB**. If TB treatment has been prolonged, other portions of the medical examination may need to be repeated. When all portions of the examination are current the civil surgeon can sign the “Civil Surgeon Certification” section (Part 5) of the I-693 form, indicating that the applicant is medically cleared for the purposes of USCIS.

Technical Instructions for Civil Surgeons

- Indicate the following information in the Remarks section of the I-693 form (may attach a separate sheet of paper, if needed):
 - The TB drug regimen used (medication names, dosages, number of doses given).
 - The date treatment began (month/year).
 - The date treatment was completed (month/year).
 - The date and results of the most recent sputum culture tests (month/year).

IX. Resources

Civil surgeons can check the CDC/Division of Global Migration and Quarantine (DGMQ) web page at <http://www.cdc.gov/ncidod/dq/civil.htm> for further details and updates on the medical examination of applicants. If clarification or further guidance is still needed about these Technical Instructions, contact CDC/DGMQ by fax at (404) 639-4441. Address the fax to “Civil Surgeon TB Technical Instructions”.

X. Appendices

APPENDIX A

PURIFIED PROTEIN DERIVATIVE STORAGE; TST ADMINISTRATION AND INTERPRETATION

Although activities related to the PPD and TST are often delegated to the civil surgeon's staff, the civil surgeon is ultimately responsible for ensuring that these tasks are performed correctly. Up-to-date, free instruction is provided in the Mantoux Tuberculin Skin Test Training Materials Kit, which can be ordered through the Division of Tuberculosis Elimination (DTBE) online ordering system or by mailing or faxing the DTBE Educational and Training Materials Order Form., available at https://www2.cdc.gov/nchstp_od/piweb/tborderform.asp, Order Publications link.

Proper Strength of Purified Protein Derivative (PPD) for the TST:

- The standard strength for each TST is 5 tuberculin units (TU) of PPD.
- In the U.S., products that utilize 1-TU or 250-TU of PPD should never be used, because interpretation is based on the use of 5 TU.

How to Correctly Store PPD:

- Carefully follow the manufacturer's instructions for the proper storage and handling of PPD.
- Keep PPD vials refrigerated, except while they are being used to fill a syringe.
- Never pre-fill a syringe.
- To avoid temperature fluctuations, do not store vials in the refrigerator door.
- Store PPD in the dark as much as possible; avoid exposure to strong light.
- Carefully monitor the manufacturer's expiration date on each vial of PPD.
- Record the date that each vial is opened; discard vials that have been open for more than 30 days.

Technical Instructions for Civil Surgeons

How to correctly administer the TST:

- Inject intradermally 0.1 mL of 5 TU PPD tuberculin into inner surface of the forearm.
- Produce a wheal (discrete, pale elevation of skin) 6 mm to 10 mm in diameter.
- Do not recap, bend, or break needles, or remove needles from syringes.
- Follow universal precautions for infection control

How to Correctly Interpret the TST Reaction:

- A trained health-care worker should read the TST 48–72 hours after injection.
- Measure only induration (palpable, raised, hardened area), **not** erythema (redness).
- Measure across the forearm, perpendicular to the long bones.
- Record reaction in millimeters, even if interpreted as negative. No induration equals “0 mm.”
- A positive reaction can be measured up to one week after testing. If a negative reaction is not read within 72 hours, the test must be repeated.
- Patients should never read their own TST results.

How to Record the Administration and Results of the TST:

Document in writing:

- Date and time of administration.
- Arm that is tested (right or left).
- Brand name, lot number, and expiration date of PPD.
- Name of person administering the test.
- Date and time of reading.
- Exact millimeters of induration. (If there is no induration, “0 mm” should be recorded). Never use the terms “positive” or “negative” in recording the TST results.
- Name of person reading the test.

APPENDIX B

RADIOGRAPHIC FINDINGS SUGGESTIVE OF TB OR OTHER DISEASE

Chest Radiographic Findings Suggestive of TB disease:

Chest Radiographic Findings that Can Suggest ACTIVE TB disease:

This category comprises all findings typically associated with active pulmonary TB. An applicant with any of the following findings must be referred to the TB Control Program of the health department and submit specimens for smear and culture.

1. Infiltrate or consolidation—Opacification of airspaces within the lung parenchyma. Infiltrate or consolidation can be dense or patchy and may have irregular, ill-defined, or hazy borders.
2. Any cavitary lesion—Lucency (darkened area) within the lung parenchyma, with or without irregular margins that may be surrounded by air-space consolidation, or by nodular or reticular opacities, or both. The walls surrounding the lucent area can be thick or thin. Calcification can exist around a cavity.
3. Nodule with poorly defined margins—Round opacity within the lung parenchyma, consistent with a tuberculoma. Nodules included in this category are those with margins that are indistinct or poorly defined. The surrounding haziness can be either subtle or readily apparent, suggesting coexisting air-space consolidation.
4. Pleural effusion—Presence of a significant amount of fluid within the pleural space. This finding must be distinguished from blunting of the costophrenic angle, which may or may not represent a small amount of fluid within the pleural space (except in children, for whom even minor blunting must be considered a finding that can suggest active TB).
5. Hilar or mediastinal lymphadenopathy—Enlargement of lymph nodes in one or both hila and/or within the mediastinum, with or without associated atelectasis (volume loss) or consolidation.
6. Other—Any other finding suggestive of active TB, such as miliary TB. Miliary TB demonstrates nodules that are uniform in size, measuring 1 to 2 mm (millet size), distributed throughout the parenchyma.

Chest Radiographic Findings that Can Suggest INACTIVE TB disease:

This category includes findings that are suggestive of prior TB disease that is inactive. **Assessments of the activity of TB disease cannot be made accurately on the basis of a single radiograph.** An applicant with any of the following findings must be referred to the health department TB Control Program to determine if further evaluation (including specimens for smear and culture) is needed. If sputum smears and cultures are performed, the laboratory results will determine whether Class A or B1 is assigned. If no smears or cultures are performed, Class B2 should be assigned.

1. Discrete fibrotic scar or linear opacity—Discrete linear or reticular opacity within the lung. The edges of the opacity should be distinct, and there should be no suggestion of airspace opacification or haziness between or surrounding the linear or reticular lesion. Calcification can be present within the lesion.
2. Discrete nodule(s) without calcification—One or more nodular opacities with distinct borders and no surrounding airspace consolidation. Nodules are generally round or have rounded edges, features that distinguish them from airspace consolidation. To be included here, these nodules must be non-calcified. A solitary calcified nodule is included in the category “Other Chest Radiographic Findings, no follow-up needed based solely on radiographic findings”.
3. Discrete fibrotic scar with volume loss or retraction—Discrete linear opacities with reduction in the space occupied by the upper lobe. Associated signs include upward deviation of the fissure or hilum on the corresponding side, plus/minus asymmetry of the volumes of the two thoracic cavities.
4. Other—Any other finding suggestive of prior TB, such as upper lobe bronchiectasis. Bronchiectasis is bronchial dilation with bronchial wall thickening.

OTHER Chest Radiographic Findings:

Follow-up needed:

This category includes findings that indicate the need for follow-up evaluation of a non-TB condition.

1. Musculoskeletal abnormalities—New fractures or other bony abnormalities, such as scoliosis in a child.

Technical Instructions for Civil Surgeons

2. Cardiac abnormalities—Cardiac enlargement, cardiac anomalies, or vascular abnormalities of significant nature.
3. Other— Any other finding that the panel physician believes needs follow-up.

No follow-up needed based solely on radiographic findings:

This category includes findings that are minor and not specifically suggestive of TB disease. However, referral to the TB Control Program of the local health department for applicants with these radiographic findings may be required or recommended based on TB signs or symptoms or TST result.

1. Pleural thickening—Irregularity or abnormal prominence of the pleural margin, including apical capping (thickening of the pleura in the apical region). Pleural thickening can be calcified.
2. Diaphragmatic tenting—A localized accentuation of the normal convexity of the hemidiaphragm as if “pulled upwards by a string.”
3. Blunting of costophrenic angle (in adults)—Loss of sharpness of one or both costophrenic angles. Blunting can be related to a small amount of fluid in the pleural space or to pleural thickening and, by itself, is a nonspecific finding. In contrast, a larger pleural effusion suggests active TB disease. **Note: In children, even minor blunting of the costophrenic angle suggests active TB disease.**
4. Solitary calcified nodule or lymph node—Discrete calcified nodule (granuloma) within the lung, or calcified lymph node. The calcified lymph node can be within the hilum or mediastinum. The borders must be sharp, distinct, and well defined. **This finding was considered to be Class B3 TB in the previous TIs, but is no longer.**

APPENDIX C

REFERENCE CHARTS

Risk Factors for Progression of TB Infection to TB Disease
TB-Specific
Previous TB (in a person who received inadequate or no treatment) indicated by chest radiograph findings
Recent infection with <i>M. tuberculosis</i> (within the past 2 years), particularly in infants and children
Other Clinical Conditions
Cancer of the head and neck
Chronic malabsorption syndromes
Diabetes mellitus
End-stage renal disease
Hematologic and reticulendothelial diseases (e.g., leukemia and Hodgkin's disease)
HIV infection
Illicit drug use or use of other groups of high-risk substances
Intestinal bypass or gastrectomy
Low body weight (10% or more below ideal)
Prolonged corticosteroid therapy or other immunosuppressive therapy
Silicosis

TB Signs and Symptoms
Chills
Chest pain
Easy fatigability
Fever
Hemoptysis (blood in sputum)
Loss of appetite
Night sweats
Productive, prolonged cough
Weight loss

Pediatric TB Signs and Symptoms These are more commonly found in children
Dyspnea (difficulty breathing)
Failure to thrive
Growth delay
Hepatomegaly (enlarged liver)
Lethargy
Lymphadenopathy (cervical, axillary)
Malnutrition
Meningeal Signs
Pallor
Site-specific signs or symptoms of the middle ear and mastoid, bones, or joints
Splenomegaly (enlarged spleen)
Tachycardia (rapid heart rate)
Tachypnea (rapid respiratory rate)
Wheezing

TB Classifications
Class A – Pulmonary TB, Active, Infectious
Class B1 - Pulmonary TB, Active, Non-infectious
Class B1 – Extrapulmonary TB, Active, Non-infectious
Class B2 – Pulmonary TB, Inactive
Class B – Latent TB Infection Needing Evaluation for Treatment
Class B - Other Chest Condition (non-TB)

APPENDIX D

FORM I-693 (SAMPLE--NOT FOR USE)

Department of Homeland Security
U.S. Citizenship and Immigration Services

OMB No. 1615-0033; Expires 08/31/09
**I-693, Report of Medical
Examination and Vaccination Record**

START HERE – Please type or print in CAPITAL letters (Use black ink)

Part 1. Information about you (*The person requesting a medical examination or vaccinations must complete this part*)

Family Name (Last Name)	Given Name (First Name)	Full Middle Name
<input type="text"/>	<input type="text"/>	<input type="text"/>

Home Address: Street Number and Name Apt. Number Gender: Male Female

City	State	Zip Code	Phone Number (Include Area Code)	Date of Birth
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Place of Birth (City/Town/Village)	Country of Birth	A-Number (if any)	U.S. Social Security # (if any)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Applicant's Certification

I certify under penalty of perjury under United States law that I am the person who is identified in **Part 1** of this Form I-693, Report of Medical Examination and Vaccination Record, and that the information in **Part 1** of this form is true to the best of my knowledge. I understand the purpose of this medical exam, and I authorize the required tests and procedures to be completed. If it is determined that I willfully misrepresented a material fact or provided false/altered information or documents with regard to my medical exam, I understand that any immigration benefit I derived from this medical exam may be revoked, that I may be removed from the United States, and that I may be subject to civil or criminal penalties.

Signature - Do not sign or date this form until instructed to do so by the civil surgeon

Date (mm/dd/yyyy)

Technical Instructions for Civil Surgeons

Part 2. Medical examination *(The civil surgeon completes this part)*

1. Examination

Date of First Examination

Date(s) of Follow-up Examination(s) if Required:

Date of Exam

Date of Exam

Date of Exam

Summary of Overall Findings:

- No Class A or Class B Condition Class A Conditions (see **2** through **5** below) Class B Conditions (see **2** through **6** below)
-

2. Communicable Diseases of Public Health Significance

A. Tuberculosis (TB)

- Tuberculin Skin Test (TST) (Required for applicants 2 years of age and older; for children under 2 years of age, see pp. 11-12 of Technical Instructions at <http://www.cdc.gov/ncidod/dq/civil.htm>.)

Date TST Applied

Date TST Read

Size of Reaction (*mm*)

- Chest X-Ray - Required **ONLY** for TST reactions of > 5mm or if specific TST exception criteria met, or for an applicant with TB symptoms or immunosuppression (e.g., HIV). **Attach copy of X-Ray Report.**

Date Chest X-Ray Taken

Date Chest X-Ray Read

Results Normal

Abnormal (Describe results in remarks.)

Findings:

- No Class A or Class B TB Class B1 Pulmonary TB Class B2 Pulmonary TB Class B, Other Chest Condition (non-TB)

- Class A Pulmonary TB Disease Class B1 Extra Pulmonary TB Class B, Latent TB Infection

Remarks: (Include any signs or symptoms of TB, additional tests, and therapy given, with stop and start dates and any changes.)

Technical Instructions for Civil Surgeons

Part 2. Medical examination *(Continued)*

B. Syphilis

Serologic Test for Syphilis (Required for applicants 15 years and older)

Date Screening Run

Screening Nonreactive

Screening Reactive, Titer 1:

If Reactive, Date Confirmation Run

Confirmation Nonreactive

Confirmation Reactive

Findings:

No Class A or Class B Syphilis

Syphilis, Class A (untreated)

Syphilis, Class B
(with residual deficit, treated in the
past year)

Remarks: (Include any therapy given with doses and dates.)

C. HIV/AIDS

Serologic Test for HIV antibody (Required for applicants 15 years and older)

Date Screening Run

Screening Negative

Screening Positive

Screening Indeterminate

If Positive or Indeterminate,
Date Confirmation Run

Confirmation Negative

Confirmation Positive

Findings:

No Class A HIV

HIV, Class A

Remarks: (Include any signs or symptoms of HIV infection, therapy given, and any counseling, or referrals.)

Technical Instructions for Civil Surgeons

Part 2. Medical examination *(Continued)*

D. Other Class A/Class B Conditions for Communicable Diseases of Public Health Significance

Findings:

- Chancroid, Class A Gonorrhea, Class A
 Granuloma Inguinale, Class A Lymphogranuloma Venereum, Class A
 Hansen's Disease (Leprosy, Infectious), Class A Hansen's Disease (Leprosy, Noninfectious), Class B

Remarks: (Include any therapy given and any counseling, or referrals.)

3. Physical or Mental Disorders With Associated Harmful Behavior

- Physical/Mental Disorder, With Associated Harmful Behavior, Class A
 Physical/Mental Disorder, Without Associated Harmful Behavior, Class B

Remarks: (Include diagnosis, with likelihood of harmful behavior to recur, therapy given, and any counseling, or referrals.)

4. Drug Abuse/Drug Addiction

- Substance (Drug) Use, Listed in Section 202 of Controlled Substance Act, Class A
 Substance (Drug) Use, Not Listed in Section 202 of Controlled Substance Act, But With Associated Harmful Behavior, Class A
 Prior Substance (Drug) Use in Remission, Class B

Remarks: (Include any therapy given, rehabilitation, counseling, or referrals.)

Part 2. Medical examination *(Continued)*

Technical Instructions for Civil Surgeons

5. Vaccinations (See Technical Instructions at <http://www.cdc.gov/ncidod/dq/civil.htm> for list of required vaccines.)

Vaccine History Transferred From a Written Record				Vaccine Given	Completed Series	Waiver(s) to Be Requested from USCIS			
Vaccine	Date Received mm/dd/yyyy	Date Received mm/dd/yyyy	Date Received mm/dd/yyyy	Date Given by Civil Surgeon mm/dd/yyyy	Mark an X if completed; write date of lab test if immune or "VH" if varicella history	Blanket			
						Not Medically Appropriate			
						Not Age Appropriate	Contra-indication	Insufficient Time Interval	Not Flu Season
Specify Vaccine: DT <input type="checkbox"/> DTP <input type="checkbox"/> DTap <input type="checkbox"/>									
Specify vaccine: Td <input type="checkbox"/> Tdap <input type="checkbox"/>									
Specify vaccine: OPV <input type="checkbox"/> IPV <input type="checkbox"/>									
MMR (Measles-Mumps-Rubella) or if monovalent or other combination of the vaccines are given, specify vaccine(s):									
Hib									
Hepatitis B									
Varicella									
Pneumococcal									
Influenza									
Other vaccine (specify below):									
<i>Continued: Vaccine History Transferred From a Written Record</i>				Vaccine Given	Completed Series	Waiver(s) to Be Requested from USCIS			

Technical Instructions for Civil Surgeons

Vaccine	Date Received mm/dd/yyyy	Date Received mm/dd/yyyy	Date Received mm/dd/yyyy	Date Given by Civil Surgeon mm/dd/yyyy	Mark an X if completed; write date of lab test if immune or "VH" if varicella history	Blanket			
						Not Medically Appropriate			
						Not Age Appropriate	Contraindication	Insufficient Time Interval	Not Flu Season
Other vaccine (specify below):									
Other vaccine (specify below):									
Other vaccine (specify below):									
Other vaccine (specify below):									

Give Copy to Applicant

- Results: Applicant may be eligible for blanket waiver(s) as indicated above.
 Applicant will request an individual waiver based on religious or moral convictions.
 Vaccine history complete for each vaccine, all requirements met.
 Applicant does not meet immunization requirements.

A-number (if any)

Name (Type or print your name)

6. List other medical conditions, Class B Other (e.g. hypertension, diabetes)

Technical Instructions for Civil Surgeons

Part 3. Referral to health department or other doctor/facility (To be completed by Civil Surgeon, if referral was made)

Type or Print Name of Doctor or Health Department

Address: (Street Number and Name, City, State and Zip Code)

Date of Referral (mm/dd/yyyy)

Daytime Phone Number (Include Area Code)

Remarks: (Include name of medical condition and reasons for referral.)

Part 4. To Be Completed by Physician or Health Department Performing Referral Evaluation

The applicant identified on this form was referred to me by the civil surgeon named in **Part 5** of this form. I have provided appropriate evaluation/treatment.

Type or Print Full Name of Evaluating Physician or Health Department

Address: (Street Number and Name, City, State and Zip Code)

Signature

Date (mm/dd/yyyy)

Name of Medical Practice or Health Department

Daytime Phone Number (Include Area Code)

Remarks: (Attach a separate piece of paper, if needed.)

Technical Instructions for Civil Surgeons

Part 5. Civil Surgeon's Certification *(Do not sign form or have the applicant sign in Part 1 until all health follow-up requirements have been met.)*

I certify under penalty of perjury under United States law that: I am a civil surgeon in current status designated to examine applicants seeking certain immigration benefits in the United States; I have a currently valid and unrestricted license to practice medicine in the state where I am performing medical examinations; I performed this examination of the person identified in **Part 1** of this Form I-693, after having made every reasonable effort to verify that person whom I examined is the person identified in **Part 1**; that I performed the examination in accordance with the Centers for Disease Control and Prevention's *Technical Instructions*, and all supplemental information or updates provided to me; and that all information provided by me on this form is true and correct to the best of my information, knowledge, and belief.

Type or Print Full Name *(First, Middle, Last)*

Signature

Address *(Street Number and Name, City, State and Zip Code)*

Date *(mm/dd/yyyy)*

Name of Medical Practice or Health Department

Daytime Phone No. *(Include Area Code)*

Civil Surgeon ID #

E-Mail Address

Part 6. Health department identifying information. *(If completed by State or local health department on behalf of a refugee, place a stamp or seal where indicated.)*

Type or Print Name

(Place State or local health Department stamp/seal below.)

Signature

Date *(mm/dd/yyyy)*

Daytime Phone Number *(Include Area Code)*