County of Los Angeles
Tuberculosis Control Program

Tuberculosis Control Program Manual

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Foreword

After years of waiting, a revised Los Angeles County (LAC) Tuberculosis (TB) Control Manual is finally a reality. Largely a compilation of TB Control policies and procedures that have been issued over the years, the manual has been refashioned into a reference that is easier to read, understand, and refer to. It was designed with the Public Health TB Clinic staff in mind and is especially geared toward patient management. We sought to make the manual concise but comprehensive enough so that TB professionals could find the information needed without having to search other references.

Using this Manual

Chapter One introduces the LAC TB Control Program and its function for Public Health and the community. Chapters Two through Five focus on evaluation and management of persons with latent TB infection and active disease. Chapters Six through Eight deal with specialized functions of TB control—contact investigations, infection control, and TB law.

The generous use of tables, bullets, and numbering throughout the manual should make it easier for the TB practitioner to find information that will be helpful for patient care. Within the appendices are abbreviations used in this manual, a glossary of common TB terms, and the standard TB forms that are used in the LAC Public Health TB clinics. Management and treatment of special populations, such as pregnant and HIV-infected individuals, are incorporated within chapters discussing clinical care of TB patients.

Acknowledgments

Many people assisted me in making this manual a reality. First, I would like to thank Dr. Paul Davidson for his vision and support throughout the entire production period. Without his support and time this manual could not have been produced. Dr. Annette Nitta has also spent numerous hours going over this manual chapter by chapter, and her time is greatly appreciated. A big thank you to Flora Lamb, Linnie Henry, Barbara Lewis, Susan Hamusek and Sylvia Frumes from nursing; Leslie Barnett for her guidance with detention issues and following the Manual through to completion; David Berger, for feedback and assistance with Chapter One, Annie Luong for administrative support, and the staff at Central Health Center for putting up with me as I provided TB patient care, which was enormously helpful in preparation of the manual.

—Vincent Hsu, MD MPH

Director's Introduction

This Tuberculosis Control Manual is the first major revision of the manual since 1986. Since that time, a major increase in the number of annual cases of tuberculosis followed by an equally impressive decline for Los Angeles County has occurred. These changes resulted in large increases in State and Federal Centers for Disease Control and Prevention funding to support a renewed effort to eliminate tuberculosis in the United States. A number of scientific advances as well as new programs and staff have successfully turned the elimination of tuberculosis into an achievable goal provided sustained fiscal support and dedicated efforts are continued.

The Tuberculosis Control Program has recognized for a number of years that the Tuberculosis Control manual needed revision and updating. Considerable effort and the contributions of many persons over the years have finally resulted in this revision. I would like to thank, in particular, Jim Swanson who helped formulate the general chapter outline and content, David Gambill and Trina Pate who developed a narrative presentation of the material, and Gayle Gutierrez who made a number of refinements. But at last, it was the tireless and dedicated revision and editing of Dr. Vincent Hsu that moved the manual to the final stages of publication. His outstanding writing skills and knowledge of computer publication were critical in producing this document. I also want to acknowledge and thank all those persons who shared their ideas and laboriously reviewed all the various manuscript drafts. In particular, I would like to thank Leslie Barnett, who provided the skills needed to finalize all the details for publication and Loretta Abkar, who supplied essential technical assistance.

We hope that the new format, the use of more tables and algorithms, and the extensive appendices will facilitate the reader's use of this manual. No doubt certain materials may have been left out or will be outdated soon after publication. As a consequence, we plan to publish new updates of the manual much more frequently than in the past. Rapidly changing demands will occur as tuberculosis continues to decline, and the challenges of elimination will require more innovation and flexibility. An up-to-date manual will be a necessary companion to those efforts.

Please plan to forward your comments and suggestions to the Tuberculosis Control Program staff as you use this manual. This will help us to provide more useful revisions to future editions of the manual. In the meantime, happy reading! Keep up the excellent work toward the elimination of tuberculosis in Los Angeles County.

---Paul T. Davidson, MD
Former Director of Tuberculosis Control, September 2001

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Chapter One: Introduction

A. Mission and Vision

Our mission is to prevent the transmission of tuberculosis (TB) within Los Angeles County through early detection of active disease and treatment of latent infection.

Our vision is to eliminate tuberculosis from the indigenous and resident population of Los Angeles County.

B. Overview

The Los Angeles County (LAC) Department of Health Services, Tuberculosis Control Program (TBC), has the following major responsibilities and functions as listed in Table 1-1 below.

***Table 1-1**. Major responsibilities and functions of Los Angeles County Tuberculosis Control Program*

- Assures the successful investigation, follow-up, and treatment of all reported TB cases within LAC
- Establishes standards and policies regarding targeted testing and treatment of persons with latent TB infection (LTBI) and monitors their effectiveness and outcomes
- Collects epidemiological data, maintains a registry of all TB patients, and reports data to CDHS
- Approves all discharges and transfers of TB suspects and cases from health facilities
- Maintains legal authority to detain TB patients for examination, isolation, or treatment when necessary to protect the public's health
- Monitors LAC laboratories for compliance with state TB reporting mandates
- Provides consultation to health care providers for TB and MDR-TB patient management
- Provides infection control consultation services
- Coordinates TB screening of all Class A and B legal immigrants
- Screens all refugees entering LAC for significant medical problems
- Responds to requests for funding proposals and monitors the implementation of grant funded activities for TB control in LAC

C. Tuberculosis Control Program Roles

TBC is divided into several main components, which are described below:

1. Surveillance

The Surveillance staff maintains responsibility for all incoming disease notification reports and forms, ensuring that patient information is evaluated, that data are entered accurately into the TBC Registry, that all suspects and cases are referred to the appropriate Public Health Center (PHC), and that all data are accurately reported to the California Department of Health Services (CDHS). This work assures complete follow-up of all potential tuberculosis (TB) suspects and cases in both the private and public sectors. Staff also provides consultative services in compliance with TBC policies, guidelines and objectives.

The Surveillance staff acts on behalf of the TB controller to approve hospital discharges of TB patients and suspects (Health and Safety Code, Section 121361). In County hospitals, the TB public health nurse (PHN) liaisons review and approve those discharges. TBC works closely with district and hospital staff to determine an appropriate discharge plan. Chapter Eight describes in detail reporting mandates for clinicians, hospitals, and laboratories.

Specialized functions within the surveillance staff include:

- Multidrug-resistant TB (MDR-TB) surveillance, which offers full consultation on all such cases in LAC and assists with special procedures such as therapeutic drug monitoring. Alternative or second-line TB drugs are controlled and monitored to ensure that MDR-TB cases are identified and treated appropriately. Chapter Four provides additional details on MDR-TB management and consultation.

- Private facility surveillance provided by nursing staff assigned to the TBC Program office. The nursing staff provides oversight for the reporting and disposition of all TB patients diagnosed and treated in private health care facilities and for patients transferring care into Los Angeles County.

- County hospital and jail surveillance provided by the TB liaison public health nurse (LPHN). The LPHN staff provides oversight for the reporting and disposition of all TB patients within the LAC hospitals and Men's Central Jail.

- TB/HIV surveillance, which functions as a consultation unit to address the unique issues of legislation, political activism, polypharmacy, and interpretation of TB control practices to the HIV/AIDS community. TB screening and prevention programs have been developed for virtually all AIDS residential facilities and outpatient clinics in LAC.

- Health center assistant program specialists (APSs) provide on-site expertise and consultation, staff development, training, and performance improvement regarding tuberculosis activities to the public health centers and to the community.

- Surveillance, educational, and consultation services are provided to Ambulatory Care Health Centers (personal health centers) by a program specialist or designee.

2. Education

Education and training programs are provided by a number of TB staff. Ongoing education programs help providers to understand TB control issues and policies, educate communities about TB infection and disease, and support County efforts through materials and in-services. Monthly TB conferences, twice-monthly physician case presentations, Mantoux skin testing classes, and a variety of other educational activities are provided by TBC.

3. Physician Credentialing

Full or part-time TB physicians and area medical directors working in the PHCs are required to obtain TB certification by the successful completion of a credentialing process that includes a written examination and proctoring which is administered by TBC. Recertification is required every two years and requires at least 32 continuing educational units comprised of regular TB conferences and physician case conferences. Contact TBC for additional details.

4. ERN Certification

The Extended Role Nurse (ERN) Program is comprised of specially-trained registered nurses who supervise the care of selected patients in the PHC. Nurses receive certification by TB Control after having completed at least one year of TB experience in a PHC, attending a one-week training course, passing written tests, and completing a proctoring period. The ERN functions under a Protocol and Standardized Procedures that are reviewed annually and revised as necessary (see Appendix H). ERNs mostly follow patients with latent TB infection (LTBI), but may also follow stable or improving patients with TB disease. Use of such nurse-directed clinics allows the physician to concentrate on the management of more complicated TB suspects and cases. Complicated problems that arise with patients under the care of an ERN are referred to the physician.

5. Epidemiology

The Epidemiology staff analyzes TB surveillance data, monitors demographic trends for reported cases, oversees and designs all special epidemiological investigations conducted by TBC. The staff also provides epidemiological and statistical consultation within the Program and for outside professionals. Finally, Epidemiology staff coordinates the development and training of remote site employees accessing and entering TB surveillance data.

6. Information Systems

The Information Systems Unit staff plays a critical role in maintaining the TB Registry Information Management System (TRIMS), a relational database application developed by TBC. Its main purpose is to collect and disseminate TB-related data and report that information electronically to CDHS through the Report of Verified Case of Tuberculosis (RVCT).

7. Physician Consultation

The physicians at TBC regularly consult with physicians in the community about all aspects of TB including targeted testing, diagnosis, and treatment. PHC TB clinicians are encouraged to consult with TBC regarding difficult management issues. Management of certain TB patients, such as patients with MDR-TB, requires TBC consultation.

8. Refugee and Immigrant Health

TBC has primary responsibility for screening all refugees entering LAC. The two Refugee Health Program teams provide general health screenings, TB testing, immunizations, and medical referrals. In addition to refugee screening, TBC also has the responsibility to follow up with all immigrants (Class A or B) entering LAC who are diagnosed with TB disease prior to entering the United States. Processing of Class A/B TB alien referrals is outlined in Chapter Eight.

9. Public Health Investigation and Detention

TBC has the legal authority to protect the public health from communicable TB. Public health investigators (PHIs) enforce legal orders if a patient is suspected of endangering public health. Patients who remain communicable and are otherwise non-adherent, homeless, or incurable are referred to the TBC Inter-Region Detention Center currently at High Desert Hospital. Chapter Eight, "Legal Orders and Detention," describes these roles in greater detail.

D. Related Public and Private Organizations

1. Public Health Centers and County Hospitals

PHCs have primary responsibility for clinical and case management of TB patients, which includes TB skin testing, diagnosis, and treatment. Each PHC is staffed with TB clinic nurses, PHNs, ERNs, and a staff physician. Health center APSs representing TBC are available to each PHC to work with staff in assisting with required data collection, maintaining Program standards, and providing epidemiological data. TBC also assists the PHCs by providing continuing educational programs, and assisting with clinical management.

In addition to the PHC, all LAC hospitals (with the exception of Rancho Los Amigos) work with TBC through on-site TB liaison PHNs (LPHNs). As TBC nursing consultants, they assist staff with reporting of hospitalized TB cases and suspects, provide education, and act on behalf of the TB controller to approve discharges. The LPHNs assist and advise physicians with complicated TB patients whose care is impacted by various social issues including substance abuse, homelessness, and non-adherence with treatment as

well as medical issues such as HIV infection, diabetes, and MDR-TB. These duties are performed for private facilities by nursing staff assigned to the TBC Program office.

2. Laboratories

The LAC Public Health Laboratory (PHL) is responsible for ensuring accurate laboratory standards for doing acid-fast bacilli (AFB) smears, AFB culture identification, and *M. tuberculosis* drug susceptibilities. The PHL can also do molecular typing of specimens when indicated. All specimens from the PHCs are sent to the PHL, where smears and cultures are performed. TBC has worked closely with PHL to develop a susceptibility testing protocol for MDR-TB cases. The PHL contracts as needed with outside laboratories for specialized susceptibility testing and therapeutic drug monitoring.

Regular laboratory surveillance has been established for all laboratories in LAC to monitor compliance with reporting regulations, and to ensure that laboratory data recorded on the RVCT are correct. This has been done to improve reporting practice.

3. Private Clinics and Hospitals

TBC has the responsibility to disseminate TB information to medical professionals and the public, and will provide TB conferences and seminars on request. At the request of the provider, TBC provides consultation for TB patients under the care of a private physician. District PHNs function as TB case managers for all persons with suspected or confirmed TB within their districts, no matter where the patient is receiving clinical care. As in County hospitals, private hospitals are required to obtain TBC approval for discharge of all TB cases or suspects, and providers are required to report suspected or confirmed cases of TB within one working day.

E. TB Classification System

The current clinical classification system for TB is based on the pathogenesis of the disease and is in wide use. Health care workers who are involved in the clinical care of TB patients should become familiar with the classification system (see Table 1-2 below).

Table 1-2*. TB classification system.*

Class	Description
0	***No TB exposure --- not infected*** No history of exposure to TB and negative reaction to the tuberculin skin test (TST)
1	***TB exposure --- no evidence of infection*** History of exposure to TB but negative reaction to the TST
2	***TB infection --- no disease*** Exhibits a positive reaction to the TST but has no clinical, bacteriologic, or radiographic evidence of active TB
3	***TB infection --- active disease*** Has a positive culture for *M. tuberculosis* complex or meets clinical, bacteriological, or radiographic evidence of current active disease
4	***TB infection --- previous disease*** History of previous TB or abnormal but stable radiographic findings, negative bacteriologic studies, and no clinical evidence of current active disease
5	***TB suspect*** Diagnosis pending, awaiting results of culture or full clinical evaluation

Chapter Two: Tuberculin Skin Testing and Treatment of Latent Tuberculosis Infection

A. Introduction

Targeted tuberculin skin testing (TST) is performed to identify persons at high-risk for tuberculosis (TB) who would benefit from treatment of latent TB infection (LTBI). Many factors influence the utility of this test, including the technical preparation and administration of the TST, the prevalence of LTBI in the population being tested, the medical conditions of the individual, previous Bacille Calmette-Guérin (BCG) vaccination, and presence of non-tuberculous mycobacteria. Thus, the interpretation and diagnostic accuracy of TST, while very useful in many situations, must be cautiously interpreted depending upon the clinical situation.

Recommendations outlined in this chapter are based on guidelines issued by the Centers for Disease Control and Prevention (CDC) and joint guidelines from the California Department of Health Services (CDHS) / California Tuberculosis Controllers Association (CTCA). However, certain standards for TST and LTBI treatment in Los Angeles County (LAC) differ from State and Federal recommendations due to differences in demographics and TB epidemiology between LAC and the United States as a whole (see Appendix F, *LAC TBC Program Standards, Targeted Skin Testing and Treatment of Latent TB Infection in Adults and Children).*

B. Performing and Interpreting the Tuberculin Skin Test

The Mantoux method is the standard test used to detect infection with *M. tuberculosis.* In general, it takes two to ten weeks after infection for a person to develop a delayed-type immune response to tuberculin. A properly performed TST consists of an intradermal injection of a measured amount (5 TU) of purified protein derivative (PPD). Multiple puncture tests such as the Tine test are not recommended.

The Mantoux test can be administered in conjunction with all vaccines. However, if a vaccine containing live virus (e.g., measles) has already been given, the TST should be deferred for at least one month after the administration of the vaccine, as a false-negative result may occur when reading the TST.

Administration of the Mantoux test can be done in all persons, including individuals infected with human immunodeficiency virus (HIV), pregnant women, and persons who have previously been vaccinated with BCG. Two-step testing, which takes into account the "booster" effect, is described later in this chapter. Appropriate infection control procedures should be followed for all Mantoux applications.

1. Procedure for Administration and Reading of the TST

Equipment

- Single dose disposable, needle-safe tuberculin syringe with ½ inch 26 or 27 gauge intradermal needle with a short bevel
- Five tuberculin units (TU) Tween stabilized PPD antigen
- Alcohol swabs
- Sharps disposal container for syringe and needle disposal
- Standard millimeter ruler

Administration

1. Wash hands with soap and water.
2. Use an individual disposable, needle-safe syringe and needle for each person.
3. Expose patient's left arm and rest it comfortably on a firm and well-lighted surface.
4. Draw slightly more than 0.1 ml of PPD antigen into the syringe.
5. Exclude air bubbles, making sure there is exactly 0.1 ml (5 TU) of PPD antigen in the syringe.
6. Select an injection site on the flexor (volar) surface of the forearm about 4 inches below the elbow in an adult or at the junction of the upper and middle third of the forearm. The area should be flat and not directly over a vein.
7. The skin should be cleaned using 70% alcohol and allowed to dry completely before the injection.
8. Stretch the patient's skin at the selected site tight between the thumb and index finger.
9. Face the bevel of the needle upward and hold the syringe almost parallel to the skin.
10. Use the tip of the needle to elevate the skin to maintain as flat an angle as possible while advancing the needle, bevel side up. The tip of the needle, when properly located, can be seen just below the skin surface.
11. Inject the PPD antigen intradermally. A tense white wheal six (6) to ten (10) millimeters in diameter should appear over the point of the needle.

12. Discard the syringe and needle immediately after use in a sharps disposal container. Do not recap, bend, or break needles and use current needle-safe equipment.

13. No dressing or special skin precautions are needed.

14. Instruct the patient to return in 48 to 72 hours for reading.

Reading

1. The TST should be read 48 to 72 hours after administration. It is acceptable to read and record a negative Mantoux up to 96 hours after application. If a test is read later than 96 hours and is negative, the test must be repeated. A positive reaction will still be measurable up to one week after testing, and may still be readable.

2. Use a millimeter ruler to measure the largest diameter of induration perpendicular to the long axis of the arm at the site of the injection. Induration is characterized by an elevated firm thickening of the skin. Erythema is of no diagnostic value and should not be measured.

3. Determine the edges of the induration by side lighting or palpating with your fingertip and marking the edges with a water-soluble ink pen.

4. Measure and record all results in millimeters of induration. If no reaction is found, "0 mm" should be recorded.

2. Interpretation of the TST

1. A reaction of five (5) millimeters or more of induration should be considered positive in the following persons:

    - Persons known or suspected to have HIV infection
    - Recent contacts to an infectious case of TB
    - Persons with an abnormal chest radiograph consistent with TB disease
    - Immunosuppressed individuals

2. A reaction of ten (10) millimeters or more should be considered positive for all other persons. (In certain jurisdictions, a fifteen (15) millimeter cut point is recommended for low-risk reactors, but this is not recognized in California.)

3. TST conversion is defined as an increase of at least (10) millimeters of induration from less than ten (10) millimeters to ten (10) millimeters or more within two years, from a documented negative to positive TST. If the exact size of a previous negative TST is unknown, a skin test conversion is defined as a change from a documented negative to positive TST within a two-year period.

4. Patients who have a positive TST must receive a chest radiograph and undergo clinical evaluation for TB disease prior to starting treatment for LTBI, as described later in this chapter.

5. As the TST is neither 100% sensitive nor specific, interpretation of the TST must take many factors into account, such as current immune status, age, mechanical factors, and other risk factors for having LTBI. Thus, health care providers must interpret the TST in light of possible false-negative and false-positive results that may occur (see Table 2-1 below).

Table 2-1. *Factors that may cause false-positive and false-negative reactions to the tuberculin skin test*

Type of reaction	Possible cause
False-positive	Non-tuberculous mycobacteria BCG vaccination
False-negative	Anergy (see Table 2-9, page 2-16) Recent TB infection Very young age (<6 months old) Live-virus vaccination Overwhelming TB disease

3. Adverse Reaction to PPD

Adverse reactions to PPD are very uncommon and usually represent a high degree of sensitivity to tuberculin. A few sensitive persons may respond to skin testing with vesicular or ulcerating local reactions, lymphangitis, regional adenopathy, or fever. Allergic reactions to the phosphate-buffered saline diluent, the phenol preservative, and Tween 80, if they occur, are extremely uncommon. Immediate skin reactions to PPD have no clinical or epidemiological importance and do not indicate tuberculous infection. The PPD in doses used for tuberculin testing does not induce delayed hypersensitivity in non-infected individuals.

C. Candidates for Tuberculin Skin Testing and LTBI Treatment

TST screening should be focused on persons either at higher risk for TB exposure or infection, or at higher risk of TB disease once infected (see Tables 2-2 and 2-3 below). Groups at low risk for TB should not be routinely tested because testing in such groups will result in unnecessary testing, divert resources from those who are higher priorities, and result in a higher percentage of false-positive results. Repeat TST testing is generally not necessary for individuals with a documented previously positive TST.

***Table 2-2**. High-risk groups who are candidates for targeted testing*

- Contacts of persons with infectious TB (pulmonary or laryngeal)
- Persons known or suspected of being HIV-infected
- Injection drug users
- Persons with certain medical conditions (see Table 2-3 below)
- Persons with radiographic evidence of old, healed TB
- Employees or residents of congregate settings, such as hospitals, correctional facilities, homeless shelters, nursing homes, or drug treatment centers
- Persons from an area of the world where the incidence of TB is high (See Table 2-4, page 2-6)
- Children and adolescents <18 yrs. old exposed to adults with high-risk conditions

In general, all individuals in high-risk groups are candidates for targeted testing and, if TST-positive, eligible for LTBI treatment. However, the unique TB epidemiological profile in our region, the increased risk of isoniazid (INH) hepatitis in persons who are pregnant or over 35 years of age, and resource limitations have necessitated the LAC TB Control Program (TBC) to make recommendations that focus treatment on the following high-risk groups (see Table 2-4, page 2-6). Thus, based on these standards, it is not recommended to test individuals for LTBI if it is known beforehand that the person will not be a candidate for treatment.

***Table 2-3**. Medical conditions that are associated with an increased risk of TB in an infected person*

- Human immunodeficiency virus (HIV)
- Diabetes mellitus (especially insulin-dependent)
- Silicosis
- End-stage renal disease
- Chronic immunosuppression (including transplant recipients, persons on prolonged corticosteroid (equivalent to prednisone 15 mg daily for ≥ one month) or other immunosuppressive therapy)
- Hematological and reticuloendothelial diseases (e.g., leukemia and Hodgkin's Disease)
- Malnutrition and clinical situations associated with rapid weight loss (including cancer of the head and neck, intestinal bypass, gastrectomy, chronic malabsorption, or body weight under 10% of ideal)

***Table 2-4**. Risk groups defined for targeted testing and treatment for LTBI (if TST positive) in Los Angeles County*

Higher-risk groups	Comments
Persons with known or suspected HIV infection	All persons in these categories should be tested and are candidates for LTBI treatment, regardless of age. Testing and initiation of treatment should not be delayed in pregnancy
Persons with abnormal chest radiograph suggestive of TB and classified as TB Class 4	
Recent close contacts to infectious TB*	
TST converters	
Persons with medical conditions associated with an increased risk of TB (Table 2-3, page 2-5)	
Residents and employees of high risk congregate settings†	
Persons who abuse alcohol, cocaine, and intravenously-injected drugs	
Persons from countries with high TB rates who arrived in the US within the past three (3) years	All persons in these categories should be tested and are candidates for LTBI treatment, regardless of age. Initiation of treatment for pregnant women should be delayed until 3 to 6 months postpartum.
Children and adolescents under 18 years of age exposed to adults with an increased risk of TB (Tables 2-2 and 2-3, page 2-5)	
Lower-risk groups	Persons over 35 years of age should be excluded from testing. Initiation of treatment for pregnant women should be delayed until 3 to 6 months postpartum.
Persons from countries with high TB rates who have been in the US greater than three (3) years	
Persons with a positive TST who are not in the above categories	

*A patient who has a TST <5 millimeters and has TB disease excluded should be started on treatment if there is a high probability of infection or the contact is under five years of age or immunocompromised (see Chapter Six)
†Defined as residents of prisons, jails, nursing homes, other long-term care facilities, AIDS residential facilities, and homeless shelters (see Chapter Seven)

D. Initial Clinical Evaluation for LTBI

In order to rule out TB disease, *all* persons who have a positive TST should undergo a medical history, physical examination, and chest radiograph, whether or not an individual is a candidate for LTBI. Once TB disease is ruled out, the patient should then be evaluated for treatment of LTBI.

1. Medical History and Assessment

The purpose of the history is to evaluate for possible active or prior TB disease in the patient and evaluate medical conditions and medications that may interfere with treatment of LTBI.

A complete medical assessment should include:

- Review of current symptoms

- History of skin test results, TB exposures, previous treatment for LTBI, TB disease, or BCG vaccination
- Review of high-risk status situations, such as country of origin or current living situation (e.g., homelessness or congregate living)
- Review of high-risk behaviors, such as drug and alcohol use and sexual activity
- Review of current medications and allergies
- Evaluation for HIV and review of HIV-related risk factors (see Table 3-3, page 3-2). All patients with any HIV risk factors should be counseled and offered HIV testing
- Review of medical conditions, including liver disease, diabetes, seizure disorder, malignancy, or other medical condition which may affect the progression of LTBI to active disease or which may contraindicate treatment of LTBI

2. Chest Radiograph

A chest radiograph should be performed preferably the same day but no longer than ten working days after the positive TST reading unless the patient has had documentation of a chest radiograph within the past three months. If the chest radiograph is read as normal, the patient may then be further evaluated for treatment of LTBI. If the radiograph is abnormal, the clinician should evaluate for possible TB disease or other pathology. If the chest radiograph is consistent with TB, bacteriologic studies should be initiated. LTBI treatment should not be started unless active TB has been ruled out.

3. Laboratory Evaluation

Baseline laboratory testing is not routinely indicated for all persons at the start of treatment for LTBI. Such testing may, however, be considered on an individual basis. Persons with the following characteristics are required to have baseline laboratory testing:

- HIV infection
- History of, or risk of, chronic liver disease (e.g., viral hepatitis)
- Alcoholism
- Intravenous drug use
- Taking other hepatotoxic medications
- All persons over 35 years of age
- Pregnant women and those in the immediate post-partum period (three to six months)

Baseline laboratory tests depend on which drug regimen is being used (see Table 2-5 below). If the aspartate aminotransferase (AST) or alanine aminotransferase (ALT) laboratory values exceed three times the upper limit of normal, INH should not be initiated except at the discretion of the physician (see Figure 2-2, page 2-18).

***Table 2-5**. Frequency and type of tests in persons receiving treatment of LTBI for whom laboratory monitoring is indicated**

LTBI regimen	Laboratory monitoring	Frequency
INH only	AST, ALT, total bilirubin	Baseline, then monthly for first 3 months, then every 3 months and as needed if symptomatic
RIF alone or INH plus RIF	Same as above plus CBC	Same as above
RIF plus PZA†	Same as RIF. Include uric to evaluate symptoms of joint pain or if patient has a history of gout	Baseline, at 2, 4, and 6 weeks, and as needed if symptomatic

NOTE: In HIV-positive individuals on PI or NNRTI, rifabutin should be substituted for rifampin
*See Appendix A-2 for definitions of abbreviations used in this manual
† Restricted to certain patients (see page 2-9)

E. LTBI Treatment Regimens

1. Isoniazid

The standard in LAC is to use isoniazid (INH) as a single drug for treating LTBI (see Table 2-6, page 2-11 for dosages and duration of treatment). A minimum of six months of INH should be given to treat LTBI within a nine month period of time in adults, with nine months of therapy given to children and adolescents up to age 18 years, and HIV-infected persons within a 12-month period of time. If an intermittent (twice-weekly) regimen is to be given, treatment must be given under directly observed therapy (DOT) and the length of therapy should be nine months.

Contraindications to INH must be evaluated before initiating treatment.

2. Alternative LTBI Treatment Regimens

Alternative LTBI regimens are available for those who are unable to tolerate the preferred INH regimen or satisfy the situations described below. Dosages and duration of therapy are described in Table 2-7, page 2-11. Contraindications to these drugs must be evaluated before initiating treatment. Special considerations for HIV-infected persons are detailed later in this chapter.

LTBI regimens for contacts to patients with multidrug-resistant TB (MDR-TB) are highly individualized and require consultation with TBC. Management of MDR-TB contacts is described in Chapter Six.

Rifampin Only

This six-month daily regimen is preferred to treat LTBI in adults and children exposed to cases with mono-resistance to INH or who cannot tolerate to INH.

Isoniazid plus Rifampin

This four-month daily regimen is an alternative to nine months of INH for adults with TB Class 4. It is also recommended for suspects (TB class 5) who have been started on four-drug treatment for TB but are later determined to be TB Class 4. The time for treatment as a suspect case should be included in the total four months recommended for treating LTBI. RIF alone for four months may also be an alternative to INH and RIF in treating persons with TB Class 4.

Rifampin plus Pyrazinamide

Approval from the TB Control Program is required before using this regimen. This regimen is not to be used except in HIV-infected adults who are at very high risk for tuberculosis and unlikely to take six months of INH. Particular caution is necessary in patients taking other medications associated with liver injury, and those with a history of alcoholism even if alcohol use is discontinued during treatment. Rifampin/pyrazinamide is contraindicated for persons with underlying liver disease or for those who have had isoniazid-associated liver injury. Rifampin/pyrazinamide must be given by directly observed therapy (DOT). This regimen requires more frequent monitoring for side effects because serious liver reactions have been reported, including death. Intermittent therapy is not recommended.

F. Documentation, Monitoring, and Follow-up

1. Documentation Procedures and Practices

Initial documents to be completed for patients in LAC Health Centers include the *TB Screening History* (form H-2288) and the *TB Screening Form* (form H-304). Follow-up for LTBI is recorded on the *TB Preventive Treatment Record* (form H-261). As detailed in Chapter One, certain Class 2 TB patients may be followed by an Extended Role Nurse (ERN). See Appendix E for examples of forms.

2. Clinical Monitoring

Individuals taking treatment for LTBI must be evaluated monthly for the duration of therapy. At each visit, patients should be asked in the language they best understand about signs and symptoms of drug intolerance or toxicity (see Chapter Five for toxicity and side effect profiles of TB medications), signs and symptoms of TB disease, and adherence to the medication regimen. ***No more than a one-month supply of medication is to be dispensed at a time and no refills should be given.***

Regimens that contain rifampin and pyrazinamide require more frequent monitoring. Liver function studies including serum aminotransferase (AT) and bilirubin must be performed at baseline, weeks two, four, and six of therapy. Asymptomatic serum AT increases are expected but do not require that treatment be stopped unless the AT level is greater than three times the upper limit of normal range in which case the regimen should not be resumed. Treatment should also be stopped and not resumed if any of the following findings occur: AT greater than normal range accompanied by symptoms of hepatitis, or a serum bilirubin greater than normal whether symptoms are present or not. Rifampin/pyrazinamide must be given by DOT.

3. Laboratory Monitoring

Routine laboratory follow-up intervals are listed in Table 2-5, page 2-8, for persons for whom routine laboratory monitoring is indicated. Patients for whom signs or symptoms of drug toxicity are apparent should also receive appropriate laboratory tests.

LTBI treatment should be discontinued if AST or ALT values are higher than three times the normal value or if there is clinical evidence of hepatitis (see Figure 2-2, page 2-18).

4. Management of Adverse Reactions

See Chapter Five for managing adverse reactions due to TB medications.

5. Interrupted or Incomplete Treatment

Completion of therapy should be based on the total number of doses administered—not on duration of therapy. If treatment is interrupted, the recommended number of doses of the regimen should be provided within a certain maximum time period (see Tables 2-6 and 2-7, page 2-11). Patients who have had lapses in therapy but are still able to complete the recommended number of doses in the allotted time period should be encouraged to complete therapy and do not require restarting treatment.

Patients who have had lapses in therapy that are frequent or too prolonged, thus precluding completion of doses in the time frames specified, should be assessed by the physician to determine whether or not to restart treatment. If it is decided to re-treat the patient, the entire regimen should be restarted. Specific factors to be considered in determining whether to restart treatment include:

- The individual's risk for developing TB disease
- Total number of doses of LTBI treatment administered
- Time elapsed since the last dose of treatment for LTBI
- Patient adherence issues (previous attempts at completion, willingness to continue, etc.)

When therapy is restarted after an interruption of more than three months, a medical examination, including chest radiograph, is indicated to exclude active disease.

An effort should be made to encourage patients to adhere to the LTBI treatment regimen. However, if a patient has failed three attempts to complete treatment, no further effort may be merited. Patients who interrupt therapy and are at high risk of developing TB disease (for example, contacts of patients with infectious TB, HIV-infected patients, or TB class 4 patients) should be contacted by the PHN for re-evaluation. Non-adherent patients at very high risk of developing TB disease should be given every opportunity to complete LTBI therapy and should be considered for intermittent therapy with DOT as well as incentives and enablers (see Chapter Four, page 4-14).

***Table 2-6**. Recommended isoniazid LTBI treatment regimens**

Isoniazid Regimen	Age	Dose mg/kg	Daily max, mg	Minimum Duration of Therapy
Daily	Adult	5	300	6 months (180 doses within 9 months) 9 months (270 doses within 12 months) for HIV-positive and TB Class 4
	Child†	10-15	300	9 months (270 doses within 12 months)
Twice-weekly**	Adult	15	900	9 months (76 doses within 12 months)
	Child†	20-40	900	9 months (76 doses within 12 months)

*See Appendix B for definitions of abbreviations used in this manual
**Twice-weekly regimens must be given by DOT
†Under 18 years of age

***Table 2-7**. Alternative LTBI treatment regimens (see text for specific indications for therapy)**

LTBI Regimen	Age	Daily dose, mg/kg	Max daily dose, mg	Minimum Duration of therapy
RIF alone†	Adult	10	600	6 months (180 doses within 9 months)
	Child	10-20	600	6 months (180 doses within 9 months)
INH plus RIF†	Adult**	INH 5 RIF 10	300 600	4 months (120 doses within 6 months)
RIF plus PZA†	Adult**	RIF 10 PZA 15-20	600 2000	2 months (60 doses within 3 months)

*See page A-2 for definitions of abbreviations used in this manual
** Not recommended in children
† Intermittent therapy is not recommended (see page 2-9)
NOTE: In HIV-positive individuals on PI or NNRTI, rifabutin should be substituted for rifampin. See page 2-13

6. Management of Broken Appointments

Priorities for management of broken appointments (BA) for patients on LTBI are determined according to the risks of developing active TB if LTBI treatment is stopped prematurely (see Table 2-8, page 2-12). Thus, the highest priority should be given to contacting persons who are at the greatest risk of developing TB disease.

***Table 2-8**. Guidelines for broken appointments by priority*

Priority	High-risk group	Action	
		1st BA	2nd BA
I (Highest)	Persons with known or suspected HIV infection Persons with abnormal chest radiograph suggestive of TB and classified as TB Class 4 Recent close contacts to active pulmonary or laryngeal TB TST converters—including children Persons with medical conditions associated with an increased risk of TB (Table 2-3, page 2-5)	Personal contact by PHN or ERN within 1 week. Reschedule within 2 weeks*	To physician for disposition
II	Residents and employees of high-risk congregate settings Children and adolescents <18 years of age, exposed to adults with high-risk conditions Persons who abuse alcohol, cocaine, or intravenously-injected drugs Persons born in countries with high TB rates who immigrated to the USA within ≤ 3 years	Reschedule clinic appointment with *Educational Appointment Letter* (H-1833) via mail or personal contact	Close with *Educational Closure Letter* (H-1834)
III (lowest)	All other reactors	Close with H-1834	

* It is acceptable to mail the appointment notification to patients who have completed several months of LTBI therapy and who have an adequate supply of medications

7. Closure Procedures

An individual who has completed therapy as defined by total number of doses administered may be discharged from the clinic as having completed treatment when the patient returns for the final month of medication. Closure should be documented on the *TB Screening Form* (form H-304) whether or not the person has completed LTBI treatment. Patients who have completed LTBI treatment are to be given a *Preventive Therapy Completion Card*. The *Educational Closure Letter* (form H-1834) is to be sent to patients who have BAs and thus are presumed not to have completed LTBI treatment. See Appendix E for examples of forms.

8. Follow-up For Patients After Closure

No routine visits are necessary for patients after completion of LTBI treatment. Patients should be reminded about symptoms of TB disease. In some cases, individuals may require another complete course of LTBI therapy if they have been re-exposed as a close contact to an infectious case of TB and have HIV/AIDS or are otherwise immunosuppressed.

G. LTBI Considerations in Special Populations

1. Pregnancy

Pregnancy alone does not increase the risk for TB disease and routine TB screening is not recommended in pregnancy. However, pregnant women who are at high risk for TB infection or progression to TB disease should be tested for LTBI.

Standards for screening, diagnosis, and treatment of LTBI in this population are generally identical to the general population with the following considerations:

- Treatment for LTBI should generally be delayed until the mother is three to six months post-partum due to an increased risk of developing INH-related hepatitis unless the patient is in a high-risk category as defined in Table 2-4, page 2-6. In these high-risk groups, treatment should be initiated during pregnancy. INH has no known teratogenic effect on the fetus.

- Chest radiograph should be performed with appropriate lead shielding.

- Baseline and monthly LFTs must be obtained during treatment (see Figure 2-2, page 2-18).

- If a woman already receiving LTBI treatment becomes pregnant, treatment is to be continued until completion of therapy.

2. HIV-Infected Individuals

The following considerations apply to LTBI treatment in HIV-infected individuals:

- Given the high risk of progression, initiation of LTBI treatment should be started regardless of age as soon as TB disease has been ruled out, assuming no contraindications to INH treatment exist.

- INH is the preferred treatment in LAC.

- As an alternative, two months of daily PZA and RIF is effective in treatment of LTBI in the HIV-infected population (see Table 2-7, page 2-11), and may be appropriate for those who are unable or unwilling to take nine months of INH therapy. However, it should be used with caution. Approval from the TB Control Program is required before using this regimen because of the potential for liver damage and death.

- Rifabutin should be substituted in situations where RIF should not be given such as in HIV-infected persons taking protease inhibitors or non-nucleoside reverse transcriptase inhibitors. Dosage adjustment may be necessary (see Table 4-6, page 4-9), and TBC should be consulted before making this substitution.

H. Special Issues in Tuberculin Skin Testing

1. BCG Vaccination

BCG vaccination is generally not recommended for use within the United States because of questionable and variable efficacy in protecting individuals from TB disease. It may also interfere with the ability to determine TST reactivity, causing a false-positive reaction. In BCG-vaccinated individuals who immigrate to the United States from countries where TB is endemic, it may not be possible to distinguish a positive TST due to true LTBI versus BCG vaccination. However, TST reactivity due to BCG vaccination in such individuals is highly variable and will tend to wane over time.

The standards in LAC regarding the use of and evaluation of persons with previous BCG vaccination are:

- BCG vaccination is not generally recommended. Rare exceptions may apply, but are utilized only in special circumstances under consultation with TBC.

- A history of previous vaccination with BCG (with or without a BCG vaccination scar) is not a contraindication to TST, nor does it influence the indications for a TST. Administration and reading of the TST in these individuals are performed in the same manner as in those who had no previous BCG vaccination. As with other individuals, those with a positive TST must have active TB ruled out, and if applicable, the patient should be offered treatment for LTBI.

- It is the standard of TBC that a positive TST *beyond one year* of documented BCG vaccination should be interpreted and managed as true LTBI. In the case of a young child under two years of age, or in an individual who has had documented BCG vaccination within the past year, it may be reasonable to attribute a positive TST to the BCG vaccine, depending on clinical circumstances. However, persons with a positive TST who are contacts to an infectious case of TB or are continuously exposed to populations at high-risk for TB should be considered TB-infected, no matter when vaccination was given. Patients with a history but no documentation of BCG vaccination within one year prior to skin testing should be managed as if they had no previous vaccination.

Management of Individuals With Positive TSTs Within One Year of BCG Vaccination

Routine TB screening of individuals within one year of BCG vaccination, including infants less than one year of age who had BCG vaccination at birth, may result in false-positive results. Thus, routine screening of such individuals is not recommended. However, should such screenings occur, the following are recommended for patients with a positive TST and documented BCG vaccination within one year of TST:

- If no other TB risk factors are identified, treatment for LTBI is generally not necessary. The reaction should be recorded in terms of millimeters of induration and it should be documented that the positive TST is due to BCG vaccination.

- Routine follow-up for TB screening is not necessary. The patient and/or parent should be educated about symptoms of TB and told to return to clinic should symptoms occur (see Table 3-1, page 3-1). The patient should be retested if he/she requires skin testing as a contact to someone with infectious TB or as an entrance requirement for the LAC School Mandate Program (see page 7-10).

2. Two-step Testing

In some persons infected with TB, especially older persons, the ability to mount a positive TST reaction may wane over time. An initial TST placed in these individuals may not fully react, and be interpreted as negative. However, a repeat TST within a year or more may react and show a positive reaction. This effect is known as the booster phenomenon, and a positive "boosted" response should be considered the valid baseline for that individual. In a person who has never been infected with TB (assuming no BCG vaccination or non-TB mycobacterial infection), repeated TST testing itself will not elicit a positive reaction.

Two-step testing is a screening method that takes into account a possible booster phenomenon in an individual and should be considered for any person when serial testing is to occur. While boosting is most common in persons aged 55 or older, some employers who require TB screening utilize a two-step test for all new employees regardless of age while others select an age cut-off point of usually 45 to 55 years to reduce the likelihood that a boosted reaction is not misinterpreted as a recent conversion.

Candidates for two-step TST include employees of health care facilities, employees who undergo periodic TB screening, and residents of congregate living settings (details for screening those populations are described in Chapter Seven, page 7-7). Two-step testing should be performed only for initial TB screening. Subsequent periodic testing requires only one TST. Therefore, an individual who can provide documentation of a negative TST by the Mantoux technique within the preceding year has no need for two-step testing, as it is very unlikely the TST result is the result of waning immunity.

Procedure and interpretation for two-step skin testing (see Figure 2-1, page 2-17):

1. Administer the Mantoux TST.

2. Examine the TST in 48 to 72 hours. If initial TST is negative, repeat TST within one to three weeks using the same dose and strength of tuberculin and have patient return in 48 to 72 hours for the second reading. A positive TST means the individual is considered infected, and should be evaluated for treatment of LTBI.

   OR

   As an alternative, the initial TST can be examined in seven days, since a truly positive TST persists for many days beyond 72 hours. If the initial TST is negative, a repeat TST can be administered at the same visit and the individual should be instructed to return in 48 to 72 hours for the second reading. A positive TST means the individual is considered infected, and should be evaluated for treatment of LTBI.

3. If the second test is negative, the individual is classified as uninfected. If the second test is positive, the individual is considered infected with TB.

4. Subsequent evaluations for TB in health care workers and those in congregate living setting should be done according to facility or CalOSHA TB employee health policies.

All persons who have a positive TST must receive a chest radiograph and undergo clinical evaluation for TB disease prior to starting treatment for LTBI. These procedures are described earlier in this chapter.

3. Anergy Testing

Anergy is the inability to mount a delayed-type cutaneous, cellular immune response to an antigen to which one has been previously sensitized. Patients who are anergic may have a negative TST reaction even if they have TB infection. This condition may be caused by many factors (see Table 2-9 below).

Administering other delayed-type hypersensitivity antigens, such as mumps and candida, commonly comprises anergy testing. However, because anergy testing is not standardized, the effectiveness of such testing is limited, and it is no longer recommended for validating a negative TST and should not be used to determine a patient's status and need for treatment of LTBI.

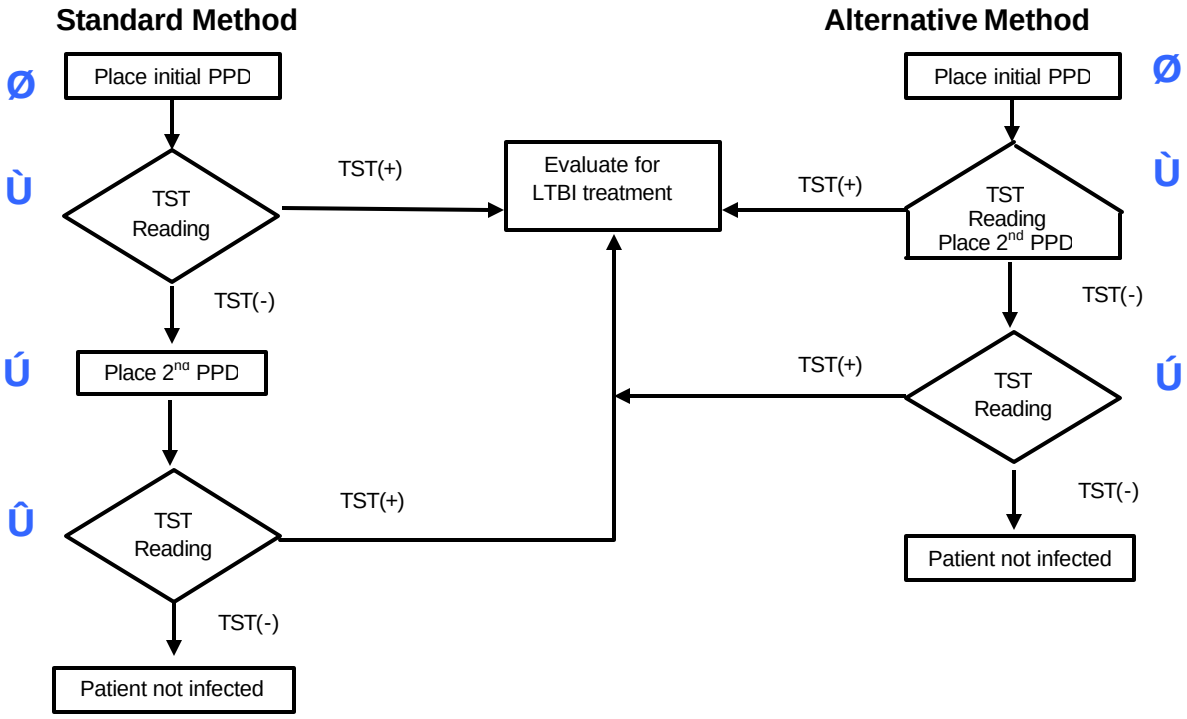
***Table 2-9**. Causes of anergy*

- HIV infection or AIDS
- Chronic corticosteroid therapy or other immunosuppressive therapy
- Some hematologic and reticuloendothelial diseases, such as leukemia or lymphoma
- End-stage renal disease
- Overwhelming pulmonary or miliary TB disease
- Clinical situations associated with substantial rapid weight loss or chronic undernutrition
- Sarcoidosis
- Extremes of age (newborn or elderly)
- Live-virus vaccination
- Certain viral infections (measles, mumps, chicken pox), or bacterial infections (typhoid fever, pertussis, brucellosis, leprosy)

Figure 2-1. Two-step Testing

Standard Method: (Step 1) Administer TST: (Step 2) Read TST in 48 to 72 hours; if TST + evaluate for LTBI treatment, if negative; (Step 3) Administer second TST in one to three weeks; (Step 4) Read second TST in 48 to 72 hours; if TST + evaluate for LTBI treatment. If negative, TST is truly negative.

Alternative Method: (Step 1) Administer TST: (Step 2) Read TST in one week, if TST + evaluate for LTBI treatment, if negative administer second TST; (Step 3) Read TST in 48 to 72 hours; if TST + evaluate for LTBI treatment. If negative, TST is truly negative and there's no "booster" response.



I. Policies and Procedures for Targeted Skin Testing Evaluation of Latent TB Infection

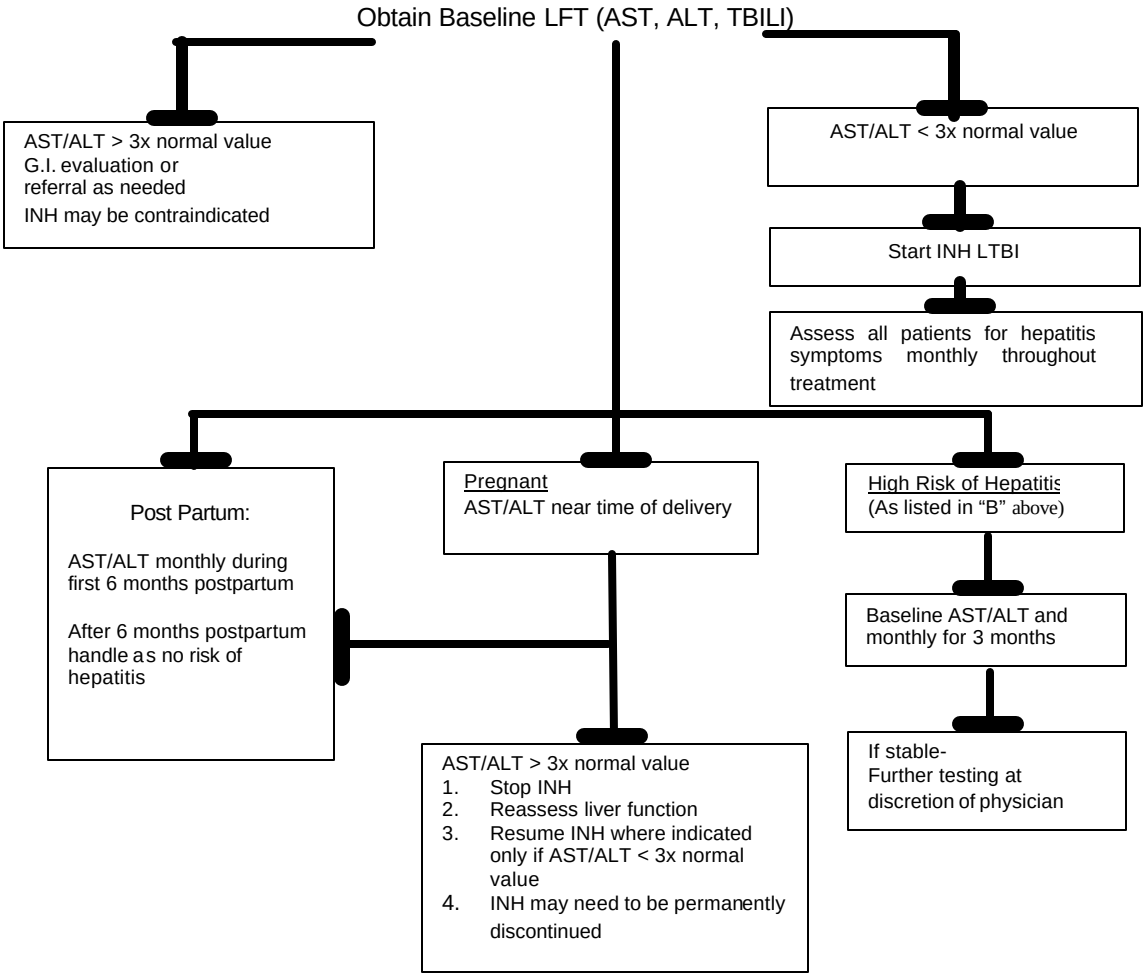
Based on the guidelines for *"Targeted Skin Testing and Treatment of Latent Tuberculosis Infection in Adults and Children"* (see Appendix N), TBC has established policies and procedures for targeted skin testing and evaluation of latent tuberculosis infection for implementation in the public health centers (see Appendix F). These policies and procedures are **not** applicable to any individual who is being tuberculin skin-tested as an intervention to interrupt or prevent the transmission of TB in the community (i.e., contact investigation, source case finding, etc.). These policies and procedures apply only to those individuals who are not a part of such routine public health interventions, and also to persons who are seeking a tuberculin skin test which is unsolicited by the public health center. The purpose of these policies and procedures is to ensure that skin testing is reserved for those individuals who will benefit the most from screening and treatment of latent TB infection (LTBI).

Figure 2-2. Liver Function Monitoring for INH Therapy of LTBI

A. No Risk of Hepatitis
   1. No baseline LFT
   2. Symptomatic monitoring monthly
   3. Stop INH when symptomatic and draw LFT
   4. Resume INH where indicated only if AST is less than 3x normal value and M.D. reorders

B. High Risk of Hepatitis
   1. History of hepatitis, liver disease , daily use of alcohol, current or past injection drug use
   2. Pregnant or 3-6 months postpartum (including post abortion)*
   3. ≥ 35 years old **

Monitor the Patient at High-Risk For Hepatitis as Follows:



* LTBI therapy is not recommended unless other risk factors present. Hold until 3-6 months postpartum.
** LTBI therapy is not recommended for persons ≥ 35 years old with normal chest x-ray and no other risk factor; the exception is those individuals born in countries with a high TB rate who have resided in the USA ≤ 3 years.

Chapter Three: Evaluation for and Diagnosis of TB Disease

A. Introduction

An individual who is suspected of having tuberculosis (TB) disease requires a complete medical evaluation, including a medical history, physical examination, tuberculin skin test (TST), chest radiograph, and appropriate bacteriologic or histological studies. This is done not only to make the diagnosis of TB disease or to confirm old TB, but also to assess all TB class 3 (TB confirmed) and class 5 (TB suspect) patients before they start treatment. The assessment includes a safety evaluation of anti-TB drugs for a particular patient and an evaluation of social issues related to adherence to medication treatment.

B. Consideration of TB Disease

Consideration of TB disease as a possible diagnosis is the first step that must be taken before further evaluation, diagnosis, and management can occur. The diagnosis of TB disease is often overlooked because of the failure to consider it in the differential. While a more definitive diagnosis may involve addition of laboratory and radiographic findings, a high degree of suspicion can be based on the epidemiology, medical history, and physical examination. In considering TB disease, it is also important to consider host factors that may affect the typical presentation of TB such as age, nutritional status, and co-existing diseases. Table 3-1 below lists the typical symptoms and signs of TB disease.

***Table 3-1**. Typical symptoms and signs of pulmonary TB disease*

Systemic
• Prolonged cough (usually > 3 weeks) • Fever • Chills • Night sweats • Fatigue • Anorexia • Recent or rapid weight loss (usually > 10 lbs)
Pulmonary
• Chest pain • Sputum production • Hemoptysis
Radiographic
• Apical or posterior segment abnormalities in the upper lobe or superior segments of the lower lobe

Human immunodeficiency virus (HIV) infection must be considered whenever the diagnosis of TB is considered. TB in HIV-infected individuals may often present with minimal or atypical symptoms. In addition, consideration should be given to the diagnosis of extrapulmonary TB disease (see Table 3-2 below), which also occurs with greater frequency in HIV-infected individuals. HIV risk factors must also be evaluated when evaluating any patient with TB and are listed below in Table 3-3. An HIV antibody test is an essential component of the laboratory evaluation.

In children, the presentation of TB may differ compared to adults because infants and children under four years of age are more likely to develop disseminated or extrapulmonary disease and may not have prominent clinical symptoms. Bacteriologic examination of sputum may not always be reliably obtained and the chest radiograph is given a relatively higher degree of weight when suspecting TB. Thus, a higher degree of suspicion of TB must be maintained to adequately diagnose TB in children.

***Table 3-2**. Examples of extrapulmonary TB*

- TB Meningitis
- Miliary / disseminated TB
- TB laryngitis
- TB lymphadenitis (i.e., scrofula)
- Bone and joint TB (e.g., Pott's Disease)
- Genitourinary TB
- Gastrointestinal TB
- Tuberculous peritonitis
- Tuberculous pericarditis
- Fever of unknown origin

***Table 3-3**. HIV risk factors*

- Injection drug use
- Treatment for sexually transmitted disease
- Multiple sex partners
- Male having sex with a male
- Exchange of sex for drugs or money
- Unprotected sex with someone with or at risk for HIV infection
- Blood transfusions prior to 1985

C. Medical History and Physical Examination

A complete history and physical examination must be done. The history consists of the elements listed in Table 3-4 below.

***Table 3-4**. Elements of the medical history for TB disease evaluation*

- History of present illness and current symptoms
- History of skin test results, TB exposures, previous treatment for latent TB infection (LTBI) or TB disease, or Bacille Calmette-Guérin (BCG) vaccination
- Review of high-risk status situations, such as country of origin or current living situation (e.g., homelessness or congregate living)
- Review of high-risk behaviors, such as drug and alcohol use
- Review of current medications and allergies
- Evaluation of HIV risk factors, including sexual activity
- Review of medical conditions, including liver disease, diabetes, seizure disorder, malignancy, or other medical condition which may be associated with TB disease or which may interfere with TB medication
- Assessment of pregnancy status in females
- Review of systems
- Social assessment, which includes an evaluation of ability to adhere to medication regimen

D. Tuberculin Skin Test

If a TST has not been documented as previously positive, the TST should be done as part of the evaluation (see Chapter Two, page 2-1). A negative TST does not necessarily rule out TB disease and needs to be interpreted in the appropriate clinical context.

E. Chest Radiograph

All patients undergoing evaluation for TB disease should have a chest radiograph done. If extrapulmonary TB is suspected, a radiograph should still be obtained to rule out pulmonary disease. While a posterior-anterior chest radiograph is standard, other radiological views, such as lateral or lordotic, may be ordered at the clinician's discretion. Appropriate lead shielding should be used in all women of childbearing age. Interpretation of the radiograph should take into account the patient's risk for HIV, as radiographic findings of TB in HIV-infected persons may be minimal or even normal.

F. Laboratory Evaluation

Initial laboratory testing includes sputum samples for suspected pulmonary disease or other tissue for suspected extrapulmonary disease. Baseline serum laboratory and other tests should be ordered depending on the regimen used.

1. Sputum and Other Tissue

Three sputum samples for acid-fast bacilli (AFB) should be collected on consecutive separate days for smear and culture. Early morning specimens are preferred. If possible, all sputum specimens should be obtained by aerosol induction. For patients unable to produce spontaneous sputum, aerosol induction is advised and should be ordered by the clinician. The sputum and aerosol sputum collection protocols are listed in Appendices S and T, *Sputum and Aerosol Sputum Collection Protocols*. Sputum specimens should be properly labeled, sealed, and refrigerated before transporting them to the laboratory.

The collection of AFB samples for pulmonary evaluation may require the use of bronchoscopy or gastric aspiration. Bronchial washings, brushings, and biopsy specimens may be obtained if the patient is unable to produce a sputum specimen by induction. Gastric aspiration may be the only method to obtain swallowed sputum specimens from infants and young children who are unable to provide sputum specimens by other means. These invasive procedures may be medically indicated to confirm diagnosis; however, it may not be necessary when other clinical indicators that support the diagnosis of TB disease are present. Referral to an adult or pediatric pulmonary or infectious disease service at an appropriate County facility is necessary when considering these procedures.

Because TB can occur in almost any anatomical site, a variety of clinical specimens other than sputum (e.g., urine, cerebrospinal fluid, pleural fluid, or biopsy specimens) may be submitted for examination when extrapulmonary mycobacterial disease is suspected. Tissue specimens for culture of *M. tuberculosis* should be placed in a non-bacteriostatic, normal saline solution, not formalin, and should be delivered promptly to the laboratory.

2. Other Laboratory Tests

Other baseline tests should be ordered prior to treatment. These are done to assess for complicating factors related to TB, such as underlying medical conditions, and to monitor potential drug side effects and toxicity. In addition to sputum samples, these tests may need to be monitored on a regular basis during treatment. Table 3-5, page 3-5, lists the minimum laboratory evaluations to be performed, depending on the specific regimen used. The clinician may also need to order other baseline tests depending upon the patient's medical condition. Follow-up laboratory monitoring, management of side effects and adverse reactions are discussed in Chapter Five.

G. Evaluation for Drug Interactions

During the medical history, a complete list of patient medications, including prescription, over-the-counter, and herbal/alternative, should alert the TB physician to look for possible drug-drug interactions that can occur when an appropriate anti-TB regimen is initiated. Certain TB medications can increase or decrease serum levels of other drugs. Medications metabolized by the liver can alter serum TB drug levels, causing therapeutic failure or drug toxicity. Examples of potential drug interactions with TB medications are listed in Table 3-6, page 3-6.

***Table 3-5**. Baseline testing for specific TB regimens**

Drug regimen includes	Serum lab tests	Other tests
Standard TB regimen INH, RIF, PZA, EMB	CBC, LFT**, blood urea nitrogen, creatinine, glucose, uric acid, HIV Ab†	Urinalysis, visual acuity, red-green color testing
Any anti-TB drug	CBC, glucose, HIV Ab†	Urinalysis
INH, RIF	CBC, LFT**	
PZA	LFT**, uric acid	
EMB		Visual acuity, red-green color testing
Streptomycin, amikacin, capreomycin, kanamycin	Blood urea nitrogen, creatinine, serum electrolytes	Audiogram, vestibular testing
Ethionamide	LFT**, TSH	
PAS	LFT**, TSH	
Cycloserine		Assess mental status

*See Appendix B for abbreviations used in this manual
**LFT (liver function tests) consist of the following individual tests: aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase in adults, and total bilirubin
†HIV antibody testing should be offered regardless of the presence of HIV risk factors and requires a signed patient consent

***Table 3-6**. Drug-drug interactions*

TB Drug	Drug effects and interactions
Isoniazid	Increases serum levels of: • Phenytoin • Carbamazepine • Primidone • Warfarin • Benzodiazepines • Corticosteroids • Acetaminophen Decreases serum levels of: • Ketoconazole
Rifampin	Decreases serum levels of: • Warfarin • Theophylline • Oral contraceptives, estrogens, progestins • Oral hypoglycemics (sulfanylureas) • Digitoxin • Phenytoin • Calcium channel blockers • Narcotics, methadone • Protease inhibitors (saquinavir, ritonavir, indinavir, nelfinavir) • Non-nucleoside reverse transcriptase inhibitors • Immunosuppressants (corticosteroids, cyclosporine, azathioprine, tacrolimus) • Quinidine • Disopyramide • Dapsone • Daloperidol • Barbiturates • Chloramphenicol • Clofibrate • Mexiletine Probenecid may increase rifampin serum levels. Halothane may increase hepatotoxicity of both drugs. Ketoconazole may decrease serum levels of both drugs.
Pyrazinamide	Interferes with Ketostix® and Acetest® urine tests, producing a pink-brown color
Ethambutol	Absorption of ethambutol is decreased when taken with aluminum salts
Streptomycin, amikacin, capreomycin, kanamycin	Interaction with neuromuscular-blocking agents
Ethionamide	Isoniazid and cycloserine may potentiate CNS effects
PAS	Decreases serum levels of digitoxin and increases serum levels of warfarin
Cycloserine	Isoniazid and alcohol may potentiate CNS effects
Ciprofloxacin and Levofloxacin	Products containing aluminum, magnesium, calcium, iron, zinc decrease quinolone concentrations and increase serum levels of theophylline
Rifabutin	Fluconazole and clarithromycin increase rifabutin serum levels. Rifabutin decreases serum levels of clarithromycin.

H. Documentation and Reporting Policies

The following forms are to be completed for the initial TB evaluation: *TB Patient Initial History and Physical* (H-2546), *TB Patient Registry/Reporting* Form (H-290), *TB Screening Form* (H-304), and *TB Patient Clinical Summary* (H-513). See Appendix E for examples of above forms.

The initial treatment plan for each TB suspect and case should be written on the H-2546 or progress notes. TB medication orders are to be clearly written on the H-513 using the full name of the drug ordered.

Any TB class 3 or class 5 patient must be reported to the Los Angeles County (LAC) TB Control Program (TBC) within 24 hours of evaluation (see "Reporting Requirements" Chapter Eight, page 8-6). Cases diagnosed within the TB clinics are to be reported to TBC according to established procedures. The TB clinician is responsible for notifying the district public health nurse (PHN), if not already reported. The PHN, in conjunction with the clinician, will assess the patient for contact investigation. If the patient is a child under four years of age and the source patient has not been identified, source case finding must also be initiated (see Chapter Six, Table 6-1b, page 6-2).

A definitive diagnosis of a TB class 3 patient is confirmed when the criteria listed in Table 3-7 below are met. All other patients in whom TB is suspected and the work-up is in progress should be reported as a TB class 5.

Table 3-7*. Criteria to verify a case of TB*

Positive bacteriologic findings of *M. tuberculosis* or *M. bovis* (MTB complex)

OR

In the absence of bacteriologic confirmation, *all* of the following factors:

- Completed diagnostic procedures
- Decision to give a full course of therapy with two or more anti-TB drugs
- Two or more of the following:
    1. Positive TST
    2. Positive AFB smear when a culture has not been collected or cannot be obtained
    3. Abnormal and unstable chest radiograph, such as worsening X-ray consistent with TB disease
    4. Clinical improvement with treatment, such as decreased cough, weight gain, decreased lymph node size, etc.
    5. Clinical evidence of TB such as histologic findings, abnormal CSF chemistries, significant radiographic findings (plain film, computed tomography (CT) scan, intravenous pyelography, bone scan, etc.) which are not otherwise explained

Chapter Four: Treatment of Tuberculosis Disease

The standard of tuberculosis (TB) treatment in Los Angeles County (LAC) is to initiate an appropriate chemotherapeutic regimen along with Directly Observed Therapy (DOT). This chapter discusses appropriate TB regimens for individuals with regard to the patient's medical status and the susceptibility results. Treatment of persons with multidrug-resistant TB (MDR-TB) and certain medical conditions will also be discussed. In addition to DOT, incentives and enablers are highly effective tools that assist patients with completion of their TB therapy. Side effects and adverse toxic reactions to these medications are discussed in Chapter Five, Table 5-1, page 5-2.

A. General Principles of TB Therapy

An understanding of growth patterns of *M. tuberculosis*, the presence of naturally occurring resistant strains, and mechanisms of available drugs against TB have paved the way for current anti-TB drug therapy. Several subpopulations of *M. tuberculosis* exist in humans: a faster-growing extracellular population (e.g., as seen in pulmonary cavities), a slow-growing intracellular group, and a dormant population. While no existing drug treatment exists against the dormant group, isoniazid (INH) and rifampin (RIF) do have bactericidal activity against the growing populations. Pyrazinamide (PZA) is particularly effective within intracellular environments where the pH is more acidic. A small number of TB organisms naturally resistant to one particular TB drug exist in most previously – untreated patients, but generally one person does not contain a large enough bacillary load to harbor the existence of an organism resistant to two drugs.

The basic principles of treatment can be summed up as follows:

- Combination therapy with INH, RIF, and PZA is the mainstay of modern TB therapy. Multi-drug administration prevents the development of resistance. Administration of PZA allows treatment length to be shorter than the use of INH and RIF alone.

- Two phases of treatment are given: the first eradicates the many viable, rapidly-growing organisms and the second targets persistent, slower-growing organisms. Treatment length is related to the time it takes cultures to become negative.

- Successful treatment can only occur if a patient adheres to an appropriate course of medication. DOT and combination drugs are strategies to encourage adherence and prevent drug resistance.

- Never add one drug to a failing regimen. At least two drugs must be added to prevent the further development of drug resistance.

- Clinical trials have shown that administration of therapy two or three times a week (intermittent therapy) is effective.

B. Standard Treatment Regimens for Pulmonary TB

1. Induction Phase

The standard initial anti-TB regimen for class 3 or class 5 patients consists of a four-drug regimen of INH, RIF, PZA, and ethambutol (EMB), unless otherwise contraindicated. Streptomycin (SM) may be substituted for EMB, but because of greater toxicity and intramuscular administration, it should be used only when EMB is contraindicated. The length of treatment for this phase is two months (eight weeks) for most patients, but this phase **should be continued until the patient is culture-negative**. Tables 4-1 and 4-2a below, and table 4-2b on page 4-3, list specific drug regimens and dosages.

***Table 4-1**. TB treatment regimens for drug-susceptible and INH-resistant strains**

Dosing interval	Induction phase Minimum 2 months (8 weeks)	Continuation phase Minimum 4 months (16 weeks)	
		Drug-susceptible	INH-resistant
Daily	INH+RIF+PZA+EMB**	INH+RIF	RIF+PZA+EMB
Twice-weekly	INH+RIF+PZA+EMB** *daily* x 2 weeks, then twice-weekly x 6 weeks	INH+RIF	Not recommended
Thrice-weekly	INH+RIF+PZA+EMB	INH+RIF	RIF+PZA+EMB†

*It is very strongly recommended that all drug treatment be given by DOT
**EMB may be discontinued if the isolate is sensitive to INH and RIF. SM may be used as an alternative to EMB.
†Although 6-month intermittent regimens yielded good results in clinical trials despite resistance to INH, adding a fluoroquinolone and/or an injectable agent (e.g., SM, CM, AK, KM) should be strongly considered for patients with extensive disease.

***Table 4-2a**. TB drug treatment dosages in adults*

Drug	Dose, mg/kg (maximum)		
	Daily	Twice-weekly	Thrice-weekly
Isoniazid	5 (300 mg)	15 (900 mg)	15 (900 mg)
Rifampin	10 (600 mg)	10 (600 mg)	10 (600 mg)
Pyrazinamide	20-25 (2 g)	40-50 (4 g)	30-35 (3 g)
Ethambutol	15	40-50	25-30
Streptomycin	15 (1 g)	15 (1 g)	15 (1 g)

***Table 4-2b**. TB drug treatment dosages in children (under 12 years)*

Drug	Dose, mg/kg (maximum)		
	Daily	Twice-weekly	Thrice-weekly
Isoniazid	10-15 (300 mg)	20-30 (900 mg)	Not recommended
Rifampin	10-20 (600 mg)	10-20 (600 mg)	Not recommended
Pyrazinamide	15-30 (2 g)	50	Not recommended
Ethambutol	15 (2.5 g)	50	Not recommended
Streptomycin	20-40 (1 g)	20 (1 g)	Not recommended

Dosing intervals for adults and children may be given as daily or twice-weekly. Twice-weekly dosing requires initial *daily* administration of four drugs for at least two weeks, followed by twice-weekly administration until the end of treatment. Thrice-weekly dosing is an option for adults only and may begin at the start of therapy. All intermittent regimens must be given by DOT.

If drug susceptibility results show sensitivity to INH and RIF, EMB may be discontinued before the end of the induction phase, although continuation of EMB may be prudent in patients with a large burden of disease. PZA should be continued throughout the entire induction phase. Combination drugs such as Rifamate® (INH 150 mg + RIF 300 mg) or Rifater® (INH 50 mg + RIF 120 mg + PZA 300 mg) are recommended for all patients and are essential for patients who are on self-administered medications.

In a minority of cases, sputum smears and/or cultures may remain positive after three months despite appropriate treatment confirmed by drug susceptibility results. Repeating susceptibility tests and further evaluation will be necessary (see section "Treatment Failure" in Chapter Five, page 5-11).

2. Continuation Phase

This phase of treatment usually consists of INH and RIF for four months (16 to 18 weeks) to complete a total of six months of treatment, since most uncomplicated pulmonary TB patients become culture-negative within two weeks. If smears or cultures remain persistently positive, at least six months of therapy must be completed post culture conversion to negative, resulting in treatment duration of more than six months.

If drug susceptibility results are not yet available, four-drug therapy should continue until susceptibility results are available. If results show INH resistance, then INH may be discontinued. However, RIF, PZA, and EMB should be continued throughout the treatment course. The addition of a fluoroquinolone and/or an injectable agent should be strongly considered to strengthen the regimen in patients with extensive disease (see Table 4-1, page 4-2).

C. Alternative TB Treatment Regimens

Table 4-3 below lists alternative TB treatment regimens that may be considered for use in certain situations if it is not possible to employ the standard four-drug regimen, either because of drug intolerance, toxicity, or resistance to one primary drug. The efficacy of these regimens, however, is not as well documented as that of standard regimens. Consideration should be given to consulting LAC TB Control Program (TBC) when choosing an alternative TB treatment regimen.

***Table 4-3**. Alternative TB treatment regimens for patients with specific drug contraindications*

Drug regimen	Treatment length (months)*	Comments
INH+RIF+EMB	9	Use when PZA cannot be given
RIF+EMB	12	Use when INH and PZA cannot be given
INH+EMB+PZA	18	Use when RIF cannot be given

*Longer duration of therapy should be used when there is extensive disease, delay in sputum conversion, or relapse of disease

D. Regimens for Drug-Resistant TB Including MDR-TB

1. Principles of Therapy

Mono-drug resistance is defined as resistance to only one anti-TB drug. MDR-TB is defined as TB that is resistant to at least INH and RIF. TB patients infected with multidrug-resistant organisms are much more difficult to treat because they often require the use of second-line, more toxic drugs and they often require a more prolonged treatment course. In addition, good data are lacking on the efficacy of these drug regimens and the wide range of susceptibility patterns makes a standardized treatment protocol virtually impossible.

All drug-resistant TB originates in patients with drug-susceptible TB who were incompletely or inadequately treated (secondary or acquired drug resistance). Patients with acquired drug resistance can infect others who will then develop infection and disease that will have the same resistance pattern (primary resistance). Thus, the importance of completion of treatment with effective agents for drug-susceptible TB cannot be overemphasized. Due to differences in susceptibility patterns, reduced efficacy or longer duration of treatment, and higher toxicities of second-line anti-TB drugs, therapy for MDR-TB must be individualized and must involve consultation with TBC.

Knowledge of second-line TB drugs and potential toxicities is essential for managing patients on treatment for drug-resistant TB. Doses are outlined in Table 4-4, page 4-5, and adverse reactions are discussed in Chapter Five, Table 5-1, page 5-2.

***Table 4-4**. Dosages for second-line TB drugs in adults*

Second line drug	Daily dose (max)	Comments
Capreomycin Kanamycin Amikacin	15 mg/kg (1g) Intramuscular	After bacteriologic conversion, dosage may be reduced to 2-3 times per week
Ethionamide	15-20 mg/kg (1g)	May help to start at a lower dosage and increase as tolerated
Para-aminosalicylic acid	8-12 g (12g)	
Cycloserine	10-15 mg/kg (1g in divided doses; usual dose is 500-750 mg/d in two divided doses)	
Ciprofloxacin	750-1500 mg/day	Contraindicated for children; avoid with cationic agents (e.g., antacids, zinc, iron) or sucralfate
Levofloxacin	500-750 mg/day	
Clofazimine	100-300 mg/day	Consider dosing at mealtime

2. Treatment for Drug-Resistant TB and Non-MDR-TB

In situations where mono-resistance to a single primary drug or resistance to two primary drugs except both INH *and* RIF (e.g., RIF and SM or INH and EMB) is known, it may be possible to treat with a regimen listed in Table 4-1, page 4-2, (INH resistance) or Table 4-3, page 4-4. However, these regimens are not necessarily appropriate, especially if the patient has had previous therapy with those particular drugs. Other regimens, tailored to the patient's particular pattern of resistance and history of drug treatment are available, but require expert consultation from TBC.

3. Treatment Regimens for MDR-TB

The treatment of MDR-TB is based on individual susceptibility patterns and treatment histories. Furthermore, the efficacy or optimal length of such regimens has not been well studied. Each MDR-TB case requires an individualized approach to treatment and management. In addition to the general principles of therapy outlined in the beginning of this chapter, other well-established principles are to be noted:

- Use at least three drugs to which the organism is sensitive. Preferably, the patient should never have been treated with those drugs. Initially, one drug should be a bactericidal injectable agent.

- Duration of treatment must be 18 to 24 months post culture conversion to negative.

- In contrast to patients with drug-susceptible TB, patients with MDR-TB must not be treated with an intermittent therapy regimen.

4. Treatment Protocol for MDR-TB

The standard of treatment of MDR-TB patients in LAC requires an automatic consultation with TBC. The MDR-TB Surveillance Unit collects and reviews MDR-TB patient data, which are then presented to the TBC physician staff. A written treatment plan with drug dosages and follow-up recommendations will be provided. **The TB Control Program MDR-TB Surveillance Unit must approve any change in treatment. No changes are to be made prior to consultation with the MDR-TB Surveillance Unit except discontinuing medication because of serious drug side effects. Changes will be approved in writing only.**

With the exception of INH, RIF, EMB, PZA, and fixed-dose combinations of these drugs, all other TB drugs for patients must be requested through TBC using the *Special Drug Request Form for TB Drugs* (form H-3003). Special formulations of first-line drugs also require submission of an H-3003 form. Therapy should commence as soon as the drugs are available for use.

All patients with MDR-TB must be treated with daily DOT. Women of childbearing age with MDR-TB should generally not begin treatment until pregnancy is ruled out, and should be strongly encouraged to use birth control throughout the treatment course, as certain second-line drugs have a potential for teratogenicity during pregnancy.

E. Retreatment Regimens

Retreatment cases are defined as TB cases who have completed an adequate course of TB drug therapy and remained bacteriologically negative for at least one year but subsequently develop signs of relapse with positive bacteriology. This is in contrast to patients who are *treatment failures*; that is, those cases whose sputa have not converted to negative despite four or more months of therapy or who initially improve, but then worsen clinically or bacteriologically despite continuation of therapy. Management of treatment failure is discussed in Chapter Five.

In retreatment TB cases, the drug susceptibility patterns generally remain unchanged; thus the patient may be started on the same regimen that was previously effective. As with all TB class 3 or 5 patients, sputum susceptibility tests and cultures should be obtained, DOT should be instituted, and the regimen should be adjusted according to the susceptibility results.

F. Treatment Regimens for Extrapulmonary TB Disease

In general, extrapulmonary TB (see Table 3-2, page 3-2, for clinical manifestations of extrapulmonary TB) should be managed according to the principles and drug regimens outlined for pulmonary disease. In contrast to pulmonary TB, diagnosis of extrapulmonary TB is more often made on clinical grounds without culture confirmation; thus, response to treatment often must be judged on the basis of clinical improvement. In situations where culture confirmation has been made, clinical follow-up is critical because it may be difficult to obtain follow-up specimens.

Most extrapulmonary TB cases can be treated adequately with a six-month course of therapy as outlined in Table 4-1, page 4-2, with the following considerations:

- In children, miliary TB, bone and joint TB, or TB meningitis requires a minimum of 12 months of therapy.

- The use of corticosteroids may be beneficial for patients with TB meningitis and/or TB pericarditis.

G. Treatment Regimens in HIV-Infected Individuals

1. Introduction

The complexities of management of HIV-infected individuals with TB make it impossible to discuss treatment options for all situations. New developments in the field of HIV treatment make it necessary to continually update and revise specific guidelines relating to management of TB in HIV-infected persons. Thus, care for such individuals must be done by or in consultation with experts familiar in the management of both TB and HIV disease.

Clinicians who manage TB and HIV co-infection should understand the following concepts in addition to initial TB treatment principles:

- Side effect profiles of HIV antiretroviral (ARV) drugs

- Drug-drug interactions between anti-TB drugs, particularly the rifamycins, and ARV drugs

- Rifabutin dosing and toxicity

- Paradoxical reaction

This section discusses the treatment of drug-sensitive TB in HIV-infected patients who are either not receiving ARV therapy or are currently on an ARV regimen. In certain situations, it may be recommended that ARV therapy be started somewhat after initiation of TB therapy. It is therefore important that the TB clinician and the HIV specialist work to coordinate their efforts. Management of side effects, drug toxicities, and the paradoxical reaction are discussed in Chapter Five, page 5-5.

In all HIV-infected individuals with TB disease, prompt treatment of TB is critical, and the most effective treatment regimen should be used whenever possible. Because of serious potential consequences of not completing TB therapy, **DOT must be used with all HIV-infected patients with TB.** HIV-infected persons not currently on antiretroviral therapy should also be evaluated for ARV therapy in addition to anti-TB treatment. Intermittent anti-TB treatment regimens are not suitable for HIV-infected individuals, especially those with advanced immunosuppression. Expert consultation is recommended.

2. Initial Treatment Regimen for Persons not Receiving Antiretroviral Therapy

HIV-infected individuals who are not receiving and are not considered candidates for ARV therapy should receive standard four-drug therapy (see Table 4-1, page 4-2). A six-month regimen is considered adequate for treatment completion in most cases, although in some cases a longer treatment course may be necessary, depending upon clinical response to therapy.

3. Initial Treatment Regimen for Persons Currently Receiving Antiretroviral Therapy

Drug interactions between ARV regimens [notably the protease inhibitors (PIs) and non-nucleoside transcriptase inhibitors (NNRTIs)] and the rifamycins occur via the cytochrome P450-3A (CYP3A) pathway. Rifamycins induce the CYP3A pathway, which may decrease the serum concentrations of certain anti-HIV drugs. Rifabutin (RFB), however, is a less potent inducer of CYP3A, and thus may be used as a substitute for RIF when treating TB in patients on certain PIs or NNRTIs. Rifamycins may be used with nucleoside reverse transcriptase inhibitors (NRTIs). Six months of a rifabutin regimen is the standard treatment length (see Table 4-5 below), although in some cases a longer treatment course may be necessary. Pyridoxine (vitamin B_6) may decrease the risk of peripheral neuropathy in patients on both NRTIs and INH, and be added to all treatment regimens containing INH. Alternative regimens for patients who are unable to tolerate a rifamycin must be obtained through consultation with TBC. **Because changes in the field of HIV management occur so rapidly, it is strongly recommended that the treating physician not only consult with TBC, but also obtain up-to-date information from web sites of agencies that issue dosing information such as www.cdc.gov and www.fda.gov.**

***Table 4-5**. TB treatment regimens for drug-susceptible strains in HIV-infected persons with a six-month rifabutin regimen**

Dosing interval	Induction phase Min. two months (8 weeks)	Continuation phase Min. four months (16 weeks)
Daily	INH+RFB+PZA+EMB†	INH+RFB

*Pyridoxine should be administered for the entire treatment course; all individuals **must** be on DOT
†EMB should be continued throughout the entire induction phase

The recommended dose of rifabutin depends upon the specific ARV regimen administered (see Table 4-6 below). Note that a daily rifabutin regimen is not recommended for ritonavir-based regimens; consultation is recommended.

Table 4-6. *Recommended doses of rifabutin and antiretroviral drugs in combined therapy*

Class	Drug (in conjunction with two NRTI)	Daily RFB dose (mg)
PI	Saquinavir (hard-gel capsules)	NR
	Saquinavir (soft-gel capsules)	NR
	Nelfinavir *	150
	Indinavir *	150
	Amprenavir	150
	Ritonavir	NR
	Lopinavir/ritonavir	NR
NNRTI	Efavirenz	450
	Nevirapine	300
	Delavirdine	NR
Dual or triple NRTI		300

*Antiretroviral dose adjustment may be necessary with these drugs; consult with expert
Abbreviations: RFB=rifabutin, PI=protease inhibitor, NRTI=nucleoside reverse transcriptase inhibitor, NNRTI=non-nucleoside reverse transcriptase inhibitor, NR=not recommended

H. Treatment Regimens in Other Conditions

1. Infants and Children

The principles of treatment for TB disease in infants and children are the same as in adults, with dosages listed in Table 4-2b, page 4-3. In addition, the following points should be noted:

- Because of ocular toxicity, EMB should be used in young children with caution. SM may be used as an alternative.

- An infant born to a mother judged to have infectious TB disease should be separated until the mother has been placed on adequate treatment and the infant has been started on preventive therapy.

2. Pregnancy

The standard of treatment for TB disease in pregnancy is initiation with the same four-drug regimen (INH, RIF, PZA, EMB) as in non-pregnant women, with the following considerations:

- While PZA has not been recommended by the CDC for use in pregnancy due to lack of data, no adverse effects have been documented to the fetus so the advantage of a shorter regimen must be taken into consideration as compared to the unknown risk to the fetus. TBC recommends considering the use of PZA during pregnancy only after consultation with TBC.

- SM and other aminoglycosides are contraindicated due to toxic effects on the fetus.

- Anti-TB therapy can be administered to the breast-feeding mother; no known harm to the infant has been documented.

- Postpartum antituberculosis medications received by the mother do not produce adequate levels in the breast milk to protect the infant against TB infection if such protection is indicated.

- Breast-feeding is generally not contraindicated during treatment for TB, although mothers with infectious TB disease may still pose a risk of transmitting TB via the aerosol route.

- Pyridoxine (vitamin B_6) should be administered during the course of therapy unless the woman is taking a prenatal vitamin with equivalent amounts of pyridoxine.

- Suspected or known MDR-TB cases require immediate consultation with TBC because second-line drugs for TB may have teratogenic risks.

3. Chronic Renal Failure

Drug dosing regimens for patients with chronic renal failure, including those on hemodialysis, are complicated by altered pharmacokinetics of renal-metabolized drugs. The literature contains limited pharmacokinetic data regarding dialysis patients and data are almost non-existent in patients on chronic ambulatory peritoneal dialysis. Consultation with TBC is strongly recommended prior to initiation of a treatment regimen.

For patients with renal impairment, including those requiring hemodialysis, selection of the initial drug regimen is no different than in patients with normal renal function and consists of the standard four primary drugs listed in Table 4-1, page 4-2. However, dosing adjustments may be necessary because the clearance of anti-TB drugs and/or their metabolites may be impaired in patients with renal failure.

Dosing considerations for patients on hemodialysis (see Table 4-7 below):

- During the induction phase, INH and RIF are given daily and immediately after dialysis on dialysis days. PZA and EMB are given after each dialysis only.

- During the continuation phase for drug-sensitive TB, the frequency of INH administration may be decreased to dialysis days only without change in dose. RIF should continue on a daily basis.

- For drug-sensitive TB, INH and RIF should be continued until at least six months after culture conversion.

***Table 4-7**. Dosage recommendations for treatment of TB in adult patients on hemodialysis*

Drug	Recommended Dose on Dialysis*
Isoniazid**	300 mg
Rifampin**	600 mg
Pyrazinamide	20-25 mg/kg three times/week
Ethambutol†	15 mg/kg three times/week
Streptomycin§	15 mg/kg three times/week
Levofloxacin	500-750 mg three times/week
Ethionamide**	250-500 mg
Para-aminosalicylic acid **	4 gm b.i.d.

* Average for a 60 kg patient on dialysis; doses must be given after dialysis on dialysis days
**May be given daily
† Monitor serum drug concentrations to avoid toxicity
§ Route of administration is IM

I. Use of Pyridoxine in TB Regimens

Pyridoxine is indicated to prevent side effects of peripheral neuropathy in certain individuals (see Table 4-8, page 4-12).

***Table 4-8**. Indications and dosages for pyridoxine*

Drug	Dosage of Pyridoxine	Indications
Isoniazid	25 mg daily OR 50 mg twice weekly	Patients who are: • Breast-feeding • Malnourished • Diabetic • HIV-infected • Pregnant • Alcoholic • Immunosuppressed • Renally-impaired
Ethionamide	25 mg daily	Same as above
Cycloserine	50-100 mg for each 250 mg of cycloserine	All patients taking cycloserine

J. Surgery for Pulmonary TB

Surgery has a very limited role to play in treating TB. It may be helpful in a patient with MDR-TB for which there are limited drugs available for treatment, to stop hemoptysis, or to drain a persistent secondarily-infected space. If surgery is considered for a patient, it must be determined whether the disease is sufficiently localized to allow lobectomy or pneumonectomy, whether remaining lung tissue is free of disease, whether there are effective drugs to give after surgery, and whether the patient has an acceptable surgical risk. Consultation with TBC is necessary for patients in whom surgery is being considered.

K. Directly Observed Therapy (DOT)

DOT is crucial to the successful treatment of TB. DOT is defined as the delivery of every dose of medication by a health care worker who observes and documents that the patient actually ingests or is injected with the medication. DOT directs partial responsibility of treatment to the provider and helps ensure that patients complete an adequate course of TB treatment. All patients with TB class 3 and 5 should be started on DOT whether a clear indication exists or not (see Table 4-9 below). Delivery of medications alone to the patient without observation and documentation is not DOT. Patient circumstances determine whether DOT is administered at the TB clinic or at another location such as the patient's home. In LAC, DOT is provided by trained community workers, public health nurses (PHNs), and/ or clinic nurses. The TBC Standards for DOT are listed in Appendix G, *Directly Observed Therapy: Standards*.

Patients receiving DOT should be on intermittent therapy when clinically possible. Exceptions to this include daily therapy requirements during the initial treatment period and MDR-TB. If the patient is receiving daily DOT, oral medications should be supplied for the weekend and for a holiday for self-administered dosing.

***Table 4-9**. Indicators for Directly Observed Therapy*

Absolute Indicators
• HIV infection • History of previous TB disease • Homelessness • History of incarceration • Psychiatric disorder or cognitive dysfunction • History of or current substance abuse • History of non-adherence to medication regimens • Cultures showing resistance to one or more anti-TB drugs • Persistently positive specimen smears or cultures • Failure to respond to therapy
Relative Indicators*
• Congregate living • Age under 18 years or elderly with cognitive impairment • Recent immigration • Difficulty with accepting or understanding TB diagnosis

*Multiple relative indicators should be considered as an absolute indicator for DOT

L. Incentives and Enablers

The TB Control Program (TBC) provides incentives and enablers to homeless and other indigent TB class 3 and class 5 individuals in an effort to facilitate treatment completion. Housing, meals, transportation, and substance abuse rehabilitation are available. Incentives and enablers should be used in situations where adherence to the TB medication regimen may be difficult for the individual. The health center clinician and staff should determine which eligible individuals should receive these services. The Incentive and Enabler Project Procedure Manual details eligibility and provisions and is available from TBC (see Appendix J, *Incentives and Enablers Project Overview).*

Incentives and enablers are to be used as tools for increasing patient adherence. When adherence does not occur or improve as a result of the use of incentives and/or enablers, they should not be continued.

M. Government Programs

Eligibility for Medi-Cal should be determined for all patients as a means of facilitating care for related medical conditions during treatment for tuberculosis and to provide reimbursement to the County for the cost of care for outpatient services.

State disability is available for certain patients who are prohibited from working due to the evaluation and treatment of tuberculosis.

Chapter Five: Monitoring and Follow-up Evaluation for TB Treatment

A. Monitoring and Follow-up Procedures

All tuberculosis (TB) Class 3 and Class 5 patients should be evaluated at least monthly to monitor their response to treatment, adherence to treatment, and adverse reactions. The evaluation consists of clinical, medication adherence, and laboratory monitoring. The clinical courses of TB suspects and cases managed in the private sector must be reviewed at least monthly by the Public Health physician and the appropriate health center staff.

1. Clinical

The initial evaluation of a TB suspect or case includes a complete history and physical examination. Vital signs, including weight, must be recorded at each visit. The clinician must evaluate the patient for symptoms and signs of TB and note signs of clinical improvement. Physical examination will depend on the patient's symptoms and site of disease.

Assessment for symptoms or signs of liver damage, rash, or other adverse reaction must be done at each visit (see Table 5-1, page 5-2). These adverse symptoms may include unexplained anorexia, nausea, vomiting, prolonged fatigue or weakness, persistent dark urine, icterus, rash, abdominal discomfort, hearing loss, vertigo, or visual disturbances. In such cases, immediate discontinuation of the drugs suspected of causing the symptoms is necessary and a complete physical examination and laboratory assessment should be done.

Patients must be reminded at each visit about the signs or symptoms of adverse reactions, including the need to stop medications and seek medical attention as soon as possible if they occur.

2. Medication Adherence

At each visit, the clinician must monitor adherence to medication by reviewing directly observed therapy (DOT) records on patients receiving DOT. Patients who are on self-administered medications must be instructed to bring in all anti-TB drug bottles and a health center staff member must count the pills. A review must be undertaken with the patient about the appearance of the medications, the number of pills taken each day, and when and how the medications are taken. Another indication of adherence is the presence of orange-red colored urine or other secretions in patients taking rifampin (RIF) and elevated uric acid levels in patients on pyrazinamide (PZA). Prescribing fixed-dose combination drugs is useful in decreasing the risk of non-adherence in patients on self-administered treatment.

At each visit, the importance of taking the proper medications for the specified length of treatment must be emphasized. Incentives and enablers are available from the Los Angeles County (LAC) TB Control Program (TBC) to assist certain patients who may need assistance in adhering to their medication regimen (see Chapter Four, page 4-14).

***Table 5-1** Most common adverse effects of TB drugs*

Drug	Adverse effect
Isoniazid	Hepatitis Peripheral neuropathy and CNS abnormalities Rash
Rifampin	GI upset (nausea, vomiting, anorexia, diarrhea) Flu-like syndrome Hepatitis Orange secretions in urine, sweat, and other body fluids Thrombocytopenia Hemolytic anemia Neutropenia Rash Renal failure
Pyrazinamide	GI upset Hepatitis Increased uric acid and/or gout precipitation Rash Photosensitivity Myalgias
Ethambutol	Optic neuritis (blurring, red-green color blindness, decreased vision) Rash
Streptomycin Capreomycin Kanamycin Amikacin	Ototoxicity (vestibular and auditory) Renal toxicity Rash Fever
Ethionamide	GI upset (severe nausea, vomiting, anorexia, diarrhea) Hepatitis Hypothyroidism Arthralgias / myalgias Impotence Amenorrhea
PAS	GI upset (severe nausea, vomiting, anorexia, diarrhea) Hepatitis Hypothyroidism Rash Mononucleosis-like syndrome
Cycloserine	Psychosis Depression and/ or suicidal ideation Convulsions Other CNS symptoms (drowsiness, tremor, vertigo, confusion) Peripheral neuropathy
Ciprofloxacin Levofloxacin	GI upset CNS symptoms (dizziness, headaches, restlessness) Rash
Clofazimine	GI upset (nausea, vomiting, anorexia, diarrhea) Discoloration and dryness of skin Abdominal pain, organ damage due to crystal deposition
Rifabutin	GI upset Uveitis Neutropenia Thrombocytopenia Arthralgia Skin hyperpigmentation

3. Laboratory

Laboratory tests ordered at baseline prior to initiation of therapy are listed in Table 3-5, page 3-5. As a follow-up, Table 5-2 below specifies the minimum frequency of sputum and radiographic exams for pulmonary TB suspects or cases. The type and frequency of other laboratory tests depend upon the specific TB regimen being used. Other tests may need to be ordered depending upon the patient's medical condition.

***Table 5-2**. Frequency of sputum, radiographic, and laboratory follow-up for pulmonary TB suspects/ cases and patients on specific drug regimens*

Characteristic		Test	Interval
Pulmonary TB suspects/cases	All patients	Chest radiograph	At three months, then at end-of-treatment
	Smear-negative	Sputum smear and culture	Every four weeks until persistently negative cultures, and one at end of treatment
	Smear-positive	Sputum smear and culture	Every two weeks until three negative smears
	Culture-positive	Drug susceptibility studies	Repeat if still positive at three months
Drug-specific monitoring	INH or PZA	LFTs*	Monthly
	RIF	CBC, LFTs*	Monthly
	PZA	Uric acid	As needed if abnormal or if symptoms of gout occur
	EMB	Visual acuity, red-green color testing	Monthly
	SM	Electrolytes, including blood urea nitrogen and creatinine Vestibular exam (Romberg, heel-to-toe, etc.), audiogram.	Monthly Monthly and as needed if symptomatic

*LFTs (liver function tests) consist of the following individual tests: aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase, and total bilirubin

Sputum

Patients with smear-positive pulmonary TB should have sputa collected at least every two weeks until three consecutive negative sputum smears have been documented. Once sputum smears become negative, or for those patients with smear-negative but culture-positive pulmonary TB, sputum should be collected at least monthly for smears and cultures until persistently (usually three) negative cultures have been documented. Sputum must again be obtained at least at the end of treatment.

Patients whose sputum cultures have not converted to negative after two months of treatment should be carefully reevaluated. Patients with multidrug-resistant TB (MDR-TB) should have sputum smears and cultures performed at least monthly for the entire course of treatment.

Radiographic, Serum, Visual, and Audiometric Tests

After the initial chest radiograph, a repeat radiograph should be done at three months of treatment to verify stability. Although monthly routine radiographic follow-up is not recommended in patients who are clinically improving, the clinician may order additional periodic follow-up radiographs if there are concerns about an individual's response to therapy or in other clinical circumstances.

All patients on potentially hepatotoxic drugs will require LFTs on a monthly basis while on treatment. Monthly CBCs should be done for patients on a rifamycin. Visual examinations are required monthly while the patient is on ethambutol (EMB). Monthly serum tests which measure renal function and regular audiometric and vestibular tests are required if the patient requires an aminoglycoside or capreomycin.

RFLP Tests

In certain cases, restriction fragment length polymorphism (RFLP) may be requested by the clinician to aid in epidemiologic assessment. An *M. tuberculosis Epidemiologic Typing Request* form must be completed and sent to TBC for approval when ordering the test (see Appendix E for example of form).

4. Documentation

An initial history and physical examination must be recorded on the first visit (form H-2546). The medical record should be reviewed and the *TB Patient Clinical Summary* (form H-513) should be appropriately documented at each visit (see Appendix E for examples of forms). Patient status should be documented and plans for management written. Laboratory tests or other orders, TB medications along with dosages, and other information relevant to the patient's management should be recorded. Additional clinical information should be recorded on progress notes, which are to be written in the S.O.A.P format. See Appendix M, *Standards for Physician Documentation of Medical Management*, for instructions on proper documentation.

Reclassification of TB Class 5 Patients

Patients who are initially TB class 5 should be classified as TB class 3 when the clinical diagnosis of TB is supported by culture results that are positive for *M. tuberculosis* from sputa or other tissue. Table 3-7, page 3-7, lists the criteria to verify a case of TB when bacteriological confirmation is absent. Generally reclassification from class 5 to class 3 should take place within three months.

If the diagnosis of TB is not confirmed, (e.g., the patient is diagnosed with a different pulmonary process, or all cultures are negative for *M. tuberculosis* and the clinical picture does not meet criteria for TB diagnosis), then form H-513 should be completed and the suspect closed as "completed evaluation, TB diagnosis not confirmed." If the culture(s) grow(s) atypical mycobacteria and the patient does not meet clinical criteria for TB confirmation, the suspect can be closed as "diagnosis reversed-atypical mycobacterium." At minimum the work-up should include results of the initial chest radiograph and final results of sputum cultures. The patient should be evaluated for treatment of LTBI (see Chapter Two, page 2-8).

5. Medical Clearance from Restriction of Activities and Return to Work

Patients on TB treatment who show clinical and bacteriological signs of improvement may return to work, school, or other settings if the criteria in Table 7-2, page 7-6, are met. The criteria are derived from the CDHS/CTCA Joint Guidelines, *Guidelines for the Placement or Return of Tuberculosis Patients into High Risk Housing, Work, Correctional, or In-Patient Settings*, which are included in Appendix Q.

B. Management of Adverse Reactions

1. General Principles

Management of adverse reactions in patients with TB requires consideration of the following factors:

- Type and seriousness of the reaction
- Likelihood that the reaction is caused by the TB drugs
- Severity of the patient's illness and consequences of drug discontinuation
- Availability and efficacy of an alternate TB drug regimen

Adverse effects of TB medications are listed in Table 5-1, page 5-2. Depending upon the factors listed above, the clinician may decide to discontinue medications and initiate a drug rechallenge (described below), substitute current TB drugs with alternative ones, desensitize the patient, or continue current medications with close observation. If TB medication must be discontinued in patients who have severe or life-threatening TB or who are immunocompromised (e.g., HIV-infected), immediate substitution with alternative agents may be necessary. Hospitalization may be necessary if the adverse reaction is serious or life threatening. It may also be necessary for drug rechallenge or desensitization depending upon the potential for serious reaction (see page 5-6).

2. Drug Rechallenge

A general procedure for managing mild adverse reactions that are due to one or more specific drugs is known as a *drug rechallenge.* Rechallenging can help confirm whether a specific drug is causing a reaction. It is also useful when trying to determine which specific drug among the possible medications is causing the adverse reaction. If it is determined that a reaction is not serious enough to warrant permanent discontinuation of current medications, and the reaction is not an IgE-mediated reaction (i.e., anaphylaxis), then the procedure for rechallenging may be followed below:

1. Discontinue all possible-offending agents simultaneously.

2. Wait until the reaction has subsided.

3. Rechallenge the patient by restarting drugs one at a time sequentially, first at low dose, then increasing the dose of each drug incrementally under close observation within a few days. Two different methods have been described in determining which order the medications should be restarted:

    - Restart first with the suspected offending agent—a reaction that occurs with that drug can be identified immediately. This method is useful when time is critical and alternative agents need to be substituted quickly.
    - Restart first with medications thought to be least likely to be responsible for the reaction, adding the most likely agent last, if necessary. This method is useful if the suspected offending agent is not essential for the treatment regimen, but requires more effort and time on the part of the clinician and patient.

4. As the medications are being added, the patient should be asked to return regularly for reexamination and given instructions to discontinue the medication promptly if the reaction recurs.

5. If the adverse effect recurs with the drug rechallenge, other options should be considered:

    - Use of alternative anti-TB drugs. However, therapy may need to be prolonged when using alternative TB medications (see Table 4-3, page 4-4).
    - Administration of the drug through a different route, at different times, or in permanently reduced doses to achieve therapeutic levels with minimal adverse effect.
    - Desensitization, described on page 5-11.

6. The patient's clinical parameters (including culture and susceptibility results) must be completely and periodically assessed to determine which drugs are critical to the treatment regimen.

3. Hepatitis

The following persons should discontinue their medications immediately and be evaluated in clinic:

- Patients who develop symptoms consistent with hepatitis (anorexia, nausea, vomiting, abdominal pain, jaundice). Liver function tests (LFTs) should be drawn immediately.

- Asymptomatic patients who develop aspartate aminotransaminase (AST) or alanine aminotransaminase (ALT) greater than five times (>5x) the upper limit of normal. Mild elevation of bilirubin with or without slight elevations in LFTs commonly occurs during the first few weeks of a standard four-drug regimen. These are probably due to INH, PZA, and/or RIF and are usually transitory.

While drug-induced hepatitis should be strongly considered in all patients with elevated LFTs, serologic tests to rule out viral hepatitis should also be ordered. Symptoms that disappear promptly in patients whose IFTs continue to be normal make the diagnosis of drug-induced hepatitis unlikely. However, the clinician may consider other work-up for further evaluation. The anti-TB regimen can be restarted in patients in whom drug-induced hepatitis is unlikely.

If the patient's symptoms and lab results support a diagnosis of drug-induced hepatitis, if the LFTs are not dangerously elevated, and if continuing the drugs is contraindicated because the risks outweigh the benefits, the following is recommended:

- The patient with suspected drug-induced hepatitis should be examined and have LFTs repeated at least weekly.

- If symptoms improve and LFTs have declined or stabilized, it is appropriate to rechallenge with a low dose of one of the drugs in the prior regimen. With a hepatocellular pattern (AST and ALT elevated out of proportion to bilirubin and alkaline phosphatase), INH or PZA are most likely responsible, followed respectively by RIF, then EMB (in extremely rare instances). If the pattern of LFT elevation is cholestatic (high bilirubin and alkaline phosphatase out of proportion to AST and ALT), then RIF is the most likely cause.

- If symptoms persist, worsen, or if LFTs continue to rise, either an unrelated cause for hepatitis, such as alcohol or acetaminophen use, or progressive drug-related hepatitis should be suspected. Hospitalization may be necessary for closer observation and therapy depending upon the severity of the clinical status and laboratory results.

4. Dermatitis

Patients who develop severe dermatological reactions should have their anti-TB medications discontinued. Patients with extremely severe dermatologic manifestations should be referred for hospital admission. Because not all reactions will be due to TB drugs, it is important to initiate a search for other possible causes, such as other medications or environmental contact. A careful examination should be conducted to detect evidence of unrelated skin disease (e.g., scabies, contact dermatitis, childhood exanthem, acne, etc.).

The patient with a suspected TB drug-related dermatological reaction may be rechallenged after the skin reaction subsides. Desensitization may need to be considered.

- The drugs should be rechallenged in this order: either INH or RIF, followed by the other, then EMB, lastly PZA.

- Treatment should be continued with the original regimen, minus the causative agent. Depending upon the regimen and medical condition of the patient, treatment may need to be prolonged and/or alternative anti-TB medications may need to be added.

5. Gastrointestinal

Virtually every anti-TB drug can cause gastrointestinal (GI) symptoms, RIF and PZA being the most common. Because RIF is the most important medication in combined chemotherapy, every effort should be made to reintroduce this drug without precipitating of GI symptoms. Drugs used to treat MDR-TB, especially ethionamide and para-aminosalicylic acid PAS, can cause severe gastrointestinal symptoms.

Patients who have serious GI symptoms should have their anti-TB medications discontinued. LFTs should also be drawn, as symptoms of gastritis (anorexia, nausea, vomiting, epigastric distress) may indicate drug-induced hepatitis.

If LFTs do not indicate drug-induced hepatitis and symptoms of GI distress subside:

- The drugs should be restarted beginning with INH and EMB. It is then appropriate to add PZA and observe. If gastric symptoms return, PZA should be suspected as the cause, and treatment should be attempted with INH, RIF, and EMB. PZA can be omitted from the regimen with less risk than RIF, but therapy will need to be prolonged to a minimum of nine months.

- If symptoms do not recur, RIF may be introduced in most cases without the recurrence of gastric symptoms by modifying the pattern of administration, such as giving all the medication before bedtime, preceding the medication with a small meal, or restarting RIF with a smaller dose and increasing it over a period of one to two weeks.

- Antacids may be useful to help alleviate the symptoms of gastritis, but antacids may interfere with the absorption of INH and RIF. When employed, antacids should be given one to two hours after either drug has been taken, and preferably not used for prolonged periods.

- Antiemetics may be useful both in oral or parenteral forms; if more potent antiemetics are necessary (e.g., granisetron), TBC can provide the public health TB clinician with the proper request form to secure the requested antiemetic agents (see Appendix E, *Request Form for Potent Antiemetics for TB Patient With Chronic Vomiting).*

6. Peripheral Neuropathy

Isoniazid may cause peripheral neuropathy, especially in individuals with a predisposing cause, as listed in Table 4-8, page 4-12. Thus, pyridoxine should be added to the treatment regimen for those individuals. Peripheral neuropathy is manifested by paresthesias and numbness of the feet and hands, with or without peripheral motor weakness. It is important to diagnose and treat in the early stages; neurologic injury may be irreversible if the diagnosis is delayed and manifestations become severe. Neurologic consultation should be obtained if the diagnosis is not clear.

- All patients with any signs or symptoms of peripheral neuropathy should stop INH and large doses (100 to 200 milligrams) of pyridoxine (vitamin B_6) should be given. INH should not be administered again until symptoms have completely resolved; pyridoxine should be continued.

7. Other Adverse Reactions

Other reactions, such as joint (INH-induced lupus, PZA-induced gout), renal (usually with aminoglycosides), hematologic (usually RIF), visual (usually EMB), or audiovestibular (aminoglycosides) manifestations occur usually with prolonged administration of the particular drug. In these cases, the offending drug should be discontinued and other drug alternatives should be sought. Consultation with an appropriate specialty and/or TBC may be indicated.

C. Management Considerations in HIV-Infected Individuals

1. Paradoxical Reaction

The paradoxical reaction is described as the temporary exacerbation of TB symptoms and lesions after initiation of anti-TB therapy and not due to treatment failure or a second process. In HIV-infected individuals, they occur most often following the initiation of antiretroviral therapy and are likely due to inflammation following the reconstitution of immunity toward mycobacterial antigens. Symptoms are related to the site of disease and may include the following:

- Fever
- New or worsening lymphadenopathy
- New or worsening pulmonary infiltrates
- Serositis
- Cutaneous lesions
- New or expanding central nervous system mass lesions

Despite these symptoms, the patients generally feel well and do not have worsening of their TB disease due to a massively increasing mycobacterial burden. Although the paradoxical reaction is well described, it is a diagnosis of exclusion, and other possible etiologies should be evaluated.

In paradoxical reactions, which are mild or moderate, management consists of reassurance and symptomatic therapy. If a paradoxical reaction is associated with severe clinical manifestations, management might include hospitalization, corticosteroids, and/or temporary discontinuation of antiretroviral therapy only if other interventions fail.

2. Rifabutin Toxicity

Although more data are now available on proper rifabutin dosing to avoid toxic effects (Table 4-6, page 4-9), the clinician should be aware of the symptoms of rifabutin toxicity, which are listed in Table 5-1, page 5-2.

D. Procedures in Special Situations

1. Acute Overdose

Acute overdose with any drug may occur with a suicide attempt or inadvertent ingestion. INH overdose is well described; less is known about overdose signs and symptoms of the other first-line TB agents.

Isoniazid

Within thirty minutes to one hour of ingestion the patient may develop nausea, vomiting, photophobia, slurred speech, urinary retention, and tachycardia. Within two to three hours the patient may become delirious and proceed rapidly to stupor, coma, and seizures (which may be tonic-clonic or focal). Severe hypotension, cyanosis, and death may result with intractable seizures.

- If the patient is alert, with no coma or seizures, determine the dosage and time of ingestion of INH from the patient or family. In an adult, the ingestion of three grams or less of INH may not require any treatment. The patient may need a high fluid intake by mouth to facilitate the elimination of drug by the kidneys. Gastric lavage is beneficial within an hour of INH ingestion, but is potentially dangerous after two hours or if the patient has decreased mental status.

- If it is determined that the patient has ingested more than three grams, ingested an unknown amount, or has decreased mental status, convulsions, or seizures, the patient should be transferred immediately to an emergency care facility.

2. Drug Desensitization

Desensitization should be considered in patients who have hypersensitivity to anti-TB agents manifested by cutaneous (pruritus, urticaria) and/or systemic symptoms (angioedema, hypotension), especially to INH and RIF. Although patients with moderate or severe hypersensitivity must discontinue these drugs, the therapeutic effectiveness of these drugs may be great enough to warrant a desensitization procedure. These desensitization protocols can be performed within one to two days and are performed in a hospital care unit setting under the supervision of a trained physician. Consult with TBC to obtain patient referral for desensitization.

E. Treatment Failure

Patients on treatment for TB should be evaluated for treatment failure if their sputum specimens either remain smear or culture-positive after three months of treatment or their sputa become culture-positive after initially converting to negative. In this situation, the clinician should consider the possibility that the patient is not adherent with medications, or is resistant to the anti-TB medications.

The management of treatment failure includes:

- Reevaluation and repeating symptom review, chest radiograph, smear and culture results, and drug susceptibility testing

- Ensuring that all patients are put on DOT

- Discussing further management options and possible addition of second-line drugs with TBC

Chronically-Contagious TB Patients

In very unusual cases, patients may remain persistently smear and/or culture-positive despite the administration of effective medications to which the organisms are susceptible *in vitro*. Unusual MDR-TB patients may also be chronically-contagious because they are resistant to all known effective anti-TB medications. In these cases, management is complex, and may involve legal intervention. In these cases, consultation with TBC is required.

F. Broken Appointments and Missed DOT Dosages

One objective in TB control is to ensure continuous, uninterrupted drug therapy for patients with TB disease. In addition to providing DOT, each clinic should have efficient services in place to help ensure that patients are able to keep their appointments. These services may include:

- Scheduling return clinic visits in writing on the same day of appointment
- Reminding patients by phone about their appointments one or two days prior to the appointment
- Transporting patients via County vehicle, if available
- Providing public transportation tokens, bus passes and other incentives and enablers
- Minimizing waiting time in the clinic

The consequences of missing DOT doses or clinic appointments can lead to possible relapse, infectiousness, and drug resistance, especially if treatment is interrupted early in the patient's course when the bacillary burden is higher. Thus any of these situations requires immediate follow-up. While every attempt should be made to contact a person who has missed an appointment to encourage adherence to scheduled appointments, it may be necessary to use legal intervention if a patient remains persistently nonadherent. The policies and standards of managing broken appointments and missed DOT doses are outlined below (see Appendix H, *Protocol and Standardized Procedures for Extended Role Nurses Functioning in the Tuberculosis Control Program).*

Missed DOT Doses

In general, treatment interruptions have more serious consequences if they are longer or occur earlier in the patient's course when the bacterial burden is higher. General guidelines for missed DOT doses follow:

- Therapy will need to be prolonged if a patient misses one or two DOT doses, either by refusing medication or by failing to show up as previously arranged (see Table 5-3, page 5-13). The public health nurse (PHN) case manager and TB clinician must be notified.
- A repeated pattern of missed DOT doses requires consultation with TBC as intervention (such as Order to Complete a Course of DOT) may be indicated.
- Any MDR-TB case in which a patient misses one or more DOT doses requires TBC consultation.

***Table 5-3**. Make-up time parameters for missed DOT doses*

DOT interval	Missed doses per week	Action
Daily	Two or more	• Notify PHN case manager and clinician • Extend duration of therapy by one week for each time period missed (see 2nd column) • Call TB Control Program if any question arise
2x week	One or more	
3x week	Two or more	

Broken Appointments

Broken appointments (BA) refer to appointments made to see a physician or ERN in the clinic that are not kept by the patient. The immediacy of follow-up of BAs for TB class 3 or 5 patients depends on factors related to infectiousness (Table 7-1, page 7-1, and Table 7-2, page 7-6) or therapy (amount of therapy completed, drug toxicity, adherence issues).

Guidelines for managing BAs:

- All TB class 3 or class 5 patients who break their appointments should receive follow-up by telephone or individual contact within two working days and have their appointments rescheduled within one week.

- A second BA requires clinician notification for disposition. A legal order for examination (Chapter Eight, page 8-1) is indicated in the following patients and may apply to other TB patients at the discretion of the clinician:

    - Patients who are currently infectious or whose infectivity is uncertain (e.g., TB class 5 patients who have not yet submitted sputum smears)
    - Patients on self-administered therapy
    - Patients who have had problems with or are at high risk for adverse reactions
    - TB class 3 patients who have been treated four months or less

- Two consecutive BAs in persons on DOT result in withholding of DOT and require further evaluation by the clinician.

- One broken clinic appointment in persons with MDR-TB requires TBC consultation. For TB class 5 patients with a low likelihood of having TB and who are not on medication, or for class 3 patients who have almost completed therapy, the decision about whether to obtain a legal order for patients who have persistent BAs must be

made by the clinician in consultation with TBC and documented in the medical record.

G. Treatment Completion and Case Closure

Completion of treatment is defined as a patient who has completed a minimum of six months (24 weeks) of therapy following culture conversion for uncomplicated, fully-sensitive or INH-mono-resistant TB. Patients receiving longer treatment courses (e.g., MDR-TB, persistent positive cultures) must complete the specified length of therapy to be classified as completing treatment. In cases where an uncomplicated TB patient is lost to follow-up and a patient has two weeks or less of therapy to complete, a clinician may decide to close the case as having completed treatment. This must be documented in the medical record.

Because interrupted or incomplete treatment may lead to treatment failure and drug resistance, all TB class 3 cases should receive follow-up and every effort made to give a full course of treatment.

Obvious exceptions include if the patient dies or moves from Los Angeles County (LAC). A few individuals may not be able to complete treatment because of adverse drug reactions in the absence of effective alternatives, or it may be determined that the patient is incurable. Such unusual cases must be brought to the attention of TBC, if not already done.

1. End-of-Treatment Evaluation

On the last clinic visit (end of treatment) for pulmonary TB, a chest radiograph and single sputum smear and culture should be done and documented on form H-513. Pulmonary cases should have negative cultures on record before closing the case as "completed prescribed course of therapy" on form H-513 and form H-1832, *TB Patient Discharge Status Card*. Form H-1832 should be given to the patient. The date of closure is defined as the date that a patient completes the last treatment dose. It should also be recorded that the patient's TB class has been reclassified from TB class 3 to class 4. MDR-TB cases are followed for two years after completing treatment (see Table 5-4 below).

Table 5-4. *Post-treatment evaluation for MDR-TB*

Interval after treatment completion (months)	Post-treatment evaluation
3	AFB sputum smear and culture
6	AFB sputum smear and culture, chest radiograph
9	AFB sputum smear and culture
12	AFB sputum smear and culture, chest radiograph
18	AFB sputum smear and culture
24	AFB sputum smear and culture, chest radiograph

2. Post-Treatment Evaluation

Patients who have completed a full course of therapy for drug-sensitive or INH-mono-resistant TB as determined by their clinician do not need further post-treatment evaluation or follow-up visits. These patients should, however, be advised to return to the clinic for reevaluation if they develop symptoms suggestive of pulmonary TB as listed in Table 3-1, page 3-1.

Because of higher relapse rates, patients with MDR-TB should be reevaluated at intervals according to the schedule in Table 5-4, page 5-14. In the first year of follow-up, sputa for AFB smears and cultures are to be collected every three months and a CXR is to be done every six months. In the second year, sputa for AFB smears and cultures are to be done every six months and a CXR is to be repeated at the end of the two-year period. Patients who have been treated without a rifamycin in the regimen should also receive post-treatment evaluation in the same manner as MDR-TB patients. The TBC physicians will review MDR-TB cases for two years post-treatment for definitive closure.

The clinician may also choose to reevaluate certain patients at his or her discretion, such as those who have been on self-administered medication but whose adherence is questionable, or those who were diagnosed with TB class 3 without the support of microbiologic confirmation and whose symptoms have not completely improved. Patients with HIV infection who have completed therapy for TB should follow up with their HIV provider; it is not necessary for them to return for post-treatment evaluation unless they meet one of the above criteria.

Chapter Six: Contact Investigation

A. Principles of Contact Investigation

Identification of persons who have been exposed to persons with infectious TB—the contact investigation (CI)—is an important tool used to identify and evaluate those with TB disease and latent TB infection (LTBI). Contacts are at much greater risk than the general population of developing LTBI and TB disease. Early identification, evaluation and treatment of contacts are essential in controlling the spread of TB disease and in reducing the probability that a person with LTBI will develop TB disease. The likelihood of transmission of TB from person-to-person is determined by characteristics related to the person known or suspected of transmitting the disease (index case), characteristics related to the contact, the environment in which the exposure occurred, and the virulence of a given strain of *M. tuberculosis*. Because not all contacts are at equal risk of developing TB disease, they are assigned as higher-risk or lower-risk, depending upon the index case's risk to transmit TB and the contact's risk of being infected (see Table 6-1a below and Table 6-1b, page 6-2).

Finding an unknown index case—source case investigation or source case finding (SCF)—is performed when certain types of persons have recently been infected with TB. This is done if a child less than four years of age is found to have LTBI or TB disease. It may also be done if clusters of skin test conversions are found within a family or congregate living situation, such as a skilled nursing facility or prison. The investigation is performed to find an index case who may have initially transmitted *M. tuberculosis* to the contacts and determine whether this index case is still infectious.

***Table 6-1a**. Index case characteristics used to determine risk to transmit TB in contact investigations*

Factor	Higher risk to transmit	Lower risk to transmit
Sputum	Smear-positive	Smear-negative
Clinical	Manifests infectious clinical symptoms as listed in Table 7-3, page 7-8.	Few or no clinical symptoms
Exposure	Significant close exposure to others • Frequent visits • Prolonged visit(s)	Short, occasional, or casual exposure
Environ-mental	• Poor ventilation • Crowded living conditions • Unprotected exposure during cough-inducing procedure	• Good ventilation • Exposure which occurred outdoors
Chest radiograph	• Cavitary • Extensive TB	• Non-cavitary • Minimal disease

***Table 6-1b**. Contact characteristics used to determine risk of becoming infected with TB in contact investigations*

Factor	Higher risk to become infected	Lower risk to become infected
TB history	Uninfected persons who: • Shared air in environment with smear-positive index case • Are in close contact to and shared air with smear-negative index case	Uninfected persons who: • Shared air in environment that did not increase infection risk • Shared air with an index case at lower risk to transmit TB Persons with previously-documented TB infection or positive Mantoux TST
Age	Children under 4 years of age	Children 4 years of age or more
Medical risk	Persons who have HIV infection, HIV risk factors, or other medical conditions listed in Table 2-3, page 2-5.	Persons with none of the conditions that would increase his/ her risk of developing TB

In Los Angeles County (LAC), CI has a lower priority if active pulmonary TB is ruled out in persons with most forms of extrapulmonary TB. Exceptions include laryngeal TB, possibly urinary tract TB in males, and whenever a risk of aerosolization may occur such as during an autopsy on a person with extrapulmonary disease.

B. Contact Investigation Standards

1. Risk Assessment and Initial Examination

Prioritizing Contact Investigations

1. Conduct a risk assessment of every newly-suspected or confirmed TB patient.

   - A medical record review should be performed to obtain information as listed in Table 6-2, page 6-3. When it is determined that a contact investigation should be conducted, initiate the *Contact Investigation Report* (form H-289).

   - Prioritize the investigation based on whether the index case is classified as higher risk or lower risk to transmit (see Table 6-1a, page 6-1), which is based on the degree of infectiousness (sputum smear results, clinical and/or radiographic findings) of the patient.

2. Determine the time period in which to initiate the investigation.

- An index case that has a higher risk of transmission should be made the highest priority of investigation and a home visit should be made within three working days of receiving case notification to interview the index case regarding contacts.

- An index case who has a lower risk of transmission should have a home visit made within seven working days of receiving case notification to interview index case regarding contacts (see Appendix L, *Tuberculosis Control Program Contact Investigation Standards).*

Table 6-2*. Medical record review for index case*

- Site of disease
- Date of onset and type of symptoms
- Chest radiograph result
- TB medicines and start date
- AFB smear, culture, and susceptibility results
- Name of lab where specimen was sent
- Other medical conditions
- Previous TB and TB treatment history
- Employment history / work site information
- Living situation / social factors

Evaluation of the Index Case

3. Review the medical record, laboratory data, and conduct an interview with the index case. The interview should be done in person, not by telephone. A field visit must be made to examine the patient's environment. Table 6-3, page 6-5, lists important elements to be assessed when conducting the interview. Multiple interviews with the index case may need to be done to adequately complete the CI. If the index case refuses to cooperate with the interview, consult with the public health nurse supervisor (PHNS), the TB chest clinician, and the medical director. If district efforts are unsuccessful, consult the LAC TB Control Program (TBC) for recommendations on how to proceed.

4. Maintain confidentiality at all times unless doing so endangers the public health. Unless permission is given, the index case must be informed that contacts will not be given information on the identity of the index case. In certain situations where work, school, or other large groups are involved, it may be necessary for a few persons (e.g., employee health or work supervisor) to know the name of the index case to ensure that all contacts are identified and to determine their level of risk. Confidentiality may be breached only in instances to protect the public health.

Prioritizing Contact Evaluations

5. From the interview with the index case, determine as much as possible which contacts are at higher risk to become infected or to develop disease once infected (see Table 6-1a, page 6-1, and Table 6-1b, page 6-2). Contacts of smear-positive individuals, close contacts of smear-negative TB suspects, HIV-infected persons, persons with HIV risk factors, immunocompromised patients, or children under four years old should be identified as higher risk. Use the concentric circles of investigation to determine whether to expand the CI (see Figure 6-1, page 6-12).

    - Give priority to higher-risk contacts that should be evaluated as soon as possible within seven working days after the home visit with index case. A medical assessment should be completed within ten working days of home visit. For those contacts not identified during the initial home visit, screening, examination, and follow-up should be done within seven working days of being identified.

    - Evaluate lower-risk contacts as soon as possible within 14 working days after home visit with index case. Medical assessment should be completed within 28 working days of home visit. For those contacts not identified during the initial home visit, screening, examination, and follow-up should be done within 14 working days of being identified.

2. Medical Management of Contacts

Standards for medical management of contacts currently differ depending upon which of two levels the contact is classified: (1) Higher risk, and (2) lower risk to become infected.

Prior to evaluation and treatment of contacts, the following should be noted:

- Contacts who are 55 years of age or older with initial negative TSTs should be considered for two-step skin testing (as described in detail in Chapter Two, page 2-15). If the second test (done seven to ten days later) is positive, interpretation of this result (past infection vs. recent infection from index case) should be done on a case-by-case basis. If the second test is negative, this indicates a negative baseline TST.

***Table 6-3**. Elements of the index case interview*

- Purpose of interview and role of the PHN
- Confidentiality
- Education about TB, pathogenesis, transmission
- Explanation about the Mantoux skin test
- Information for the *Contact Investigation Report* (H-289), including information concerning home, work, or school locations. The period of infectiousness (time period during which a person with TB disease can transmit *M. tuberculosis*) should be determined in order to identify which contacts might have been exposed.
- Patient symptoms over time, culture and AFB smear results, and duration of TB treatment are factors that determine this period of infectiousness. A list of places the index case has been must be collected. The names of contacts and where they can be located should be obtained and the places the index case has been during the period of infectiousness.
- Activities during the infectious period at sites other than home, work or school, such as church, groups, bar, correctional facility, drug treatment center, or any other frequently visited sites or people

- Within three working days of obtaining the information regarding contacts living or working in other districts or jurisdictions, the PHN will notify the responsible party of the receiving district of jurisdiction who will then coordinate the medical management of the contacts within prescribed timelines based on assigned risk.

- Pregnant contacts at high risk who are candidates for LTBI treatment should not delay initiation of therapy (see page 2-13).

Higher Risk Contacts

I. For close contacts to smear-positive pulmonary TB cases, HIV-infected or those with HIV risk factors, immunocompromised, those under four years of age, and those with other high risk medical conditions (see table 2-3, page 2-5):

1. At the initial visit, place the Mantoux TST with five (5) TU purified protein derivative (PPD) unless a documented history of a prior positive skin test or treatment of TB disease is confirmed.

2. Arrange for or obtain immediate chest radiograph regardless of TST result.

    - If symptomatic or if chest radiograph is abnormal, manage as a TB suspect as outlined in Chapter Three, page 3-3.

- If asymptomatic and chest radiograph is normal, strongly recommend initiation of appropriate treatment for LTBI regardless of TST result. Alternative LTBI regimens may be initiated when indicated.

3. If the initial TST is five (5) millimeters or greater, the contact should complete a full course of treatment for LTBI. This is usually six or nine months of isoniazid (INH) depending upon the age and medical status of the contact (see Table 2-6, page 2-11).

4. If the TST is less than five (5) millimeters, a repeat TST is indicated three months after the last exposure to the infectious index case or after smear conversion if exposure is continued. Begin treatment for LTBI during this window period.

   - If the repeat TST is still less than five (5) millimeters, consider the possibility of anergy in immunocompromised contacts. If it is unlikely that a negative TST is the result of anergy, LTBI therapy may be discontinued and the contact discharged from supervision.

   - If the repeat TST converts by five (5) millimeters or greater, the contact should complete the full course of LTBI therapy.

II. For close contacts to smear-negative pulmonary TB cases, and all other contacts to smear-positive pulmonary TB cases:

1. On initial visit, place the Mantoux TST with five (5) TU PPD unless a documented history of a prior positive skin test or treatment of TB disease is confirmed.

2. If the initial TST is five (5) millimeters or greater, obtain a chest radiograph.

   - Management of asymptomatic contacts with a normal chest radiograph is identical to that of TB class 2 patients as described in Chapter Two, page 2-8, and should be offered LTBI therapy.

   - If symptomatic or chest radiograph is abnormal, manage as a TB suspect.

3. If the TST is less than five (5) millimeters, a repeat TST is indicated three months after the active case started treatment or after smear conversion if exposure is continued (the window period). See appendix C for definition of the window period.

   - If the repeat TST is still less than five (5) millimeters, LTBI therapy is not indicated and the contact should be discharged from supervision.

   - If the repeat TST converts by five (5) millimeters or greater, the contact should be evaluated with a chest radiograph and offered LTBI therapy if the patient remains asymptomatic and the radiograph is normal.

Lower Risk Contacts

Contacts not included in the above categories are considered lower risk contacts.

1. On initial visit, place the Mantoux TST with five (5) TU PPD unless a documented history of a prior positive skin test or treatment of TB disease is confirmed.

2. If the initial TST is ten (10) millimeters or greater, obtain a chest radiograph.

   - Management of asymptomatic contacts with a normal chest radiograph is identical to that of TB class 2 patients as described in Chapter Two, page 2-8, and they should be offered LTBI therapy.

   - If symptomatic or chest radiograph is abnormal, manage as a TB suspect.

3. If the TST is less than ten (10) millimeters, a repeat TST is recommended three months after the active case started treatment (the window period).

   - If the repeat TST is still less than ten (10) millimeters, LTBI therapy is not indicated and the contact should be discharged from supervision.

   - If the repeat TST converts by ten (10) millimeters or greater, the contact should be evaluated with a chest radiograph and offered LTBI therapy if the patient remains asymptomatic and the radiograph is normal.

Self-described contacts who do not meet the definition of higher or lower risk contacts should be evaluated as candidates for targeted testing as described in Chapter Two. Such individuals should not be identified as contacts on form H-289 (see Appendix E for example of form).

Contacts with Previously-Documented Positive Tuberculin Skin Test

Contacts with previously-documented positive TSTs must be screened for TB symptoms. In addition, a history of documented LTBI treatment and evaluation for HIV infection or other immunocompromised disease is necessary to determine the appropriate course of management (see Table 6-5, page 6-11).

Contacts of Multidrug-Resistant TB

Principles of contact investigation for multidrug-resistant TB (MDR-TB) index cases are the same as those used for index cases who have drug-susceptible TB. While MDR-TB organisms are not considered more virulent than drug-susceptible organisms, a heightened effort should be made to identify and evaluate all contacts because of the increased complexities regarding LTBI treatment or treatment of TB disease that may arise.

Very little data exist regarding the efficacy of LTBI treatment for MDR-TB contacts. LTBI treatment protocols in such persons are largely empirical, and regimens must be individualized. Because decision-making processes are complex when selecting a regimen for treating LTBI in LAC residents exposed to an MDR-TB case, consultation with TBC for expert advice is strongly recommended.

Contacts Under the Care of Providers Outside the Health Department

Providers outside of the health department may follow contacts. Private providers should follow the guidelines for medical management of contacts as described in this chapter.

In certain cases, TB exposure to an index case may occur in the workplace or other settings where employees are being followed by an employee health service. In such cases, the employee health service may elect to assist with the CI within the workplace setting.

Employee health services must follow a TBC plan that meets minimum Cal-OSHA standards.

The PHN case manager must obtain information on screening and follow-up done by private providers to ensure that the follow-up has been completed. The letter to private providers regarding contact follow-up (H-687) may facilitate obtaining this information. Thus all private providers who manage TB contacts or conduct workplace TB CIs must release required information about management and results for individual contacts that are evaluated.

3. Complicated Contact Investigations

A complicated CI may involve several health districts, a jurisdiction outside of LAC, very large numbers of contacts, suspected MDR-TB cases, or any other case in which PHN resources may be limited. In these cases, consultation with TBC is recommended for assistance with coordination of the CI and additional resources. TBC is responsible to assess the quality control of aspects of a CI.

Because these investigations are often extensive and complex, the appropriate supervising PHN and/or nurse manager, in consultation with the area medical director and TB clinician may elect to assign more than one coordinating PHN to manage the investigation or assume the responsibility himself or herself. In instances where multiple persons are needed for an investigation, it is essential that all parties work as a team and appropriately communicate with everyone involved, including the TB clinician and TBC.

4. Public Health Center Management of Contact Investigations and Source Case Finding

The PHN case manager who is assigned a TB class 3 or 5 patient or an infected child less than four years of age is responsible for coordinating all aspects of a Contact Investigation (CI) or Source Case Finding (SCF). This includes follow-up on all referrals to other PHNs within the district, referrals to other districts or health jurisdictions, and referrals being investigated by the private sector. Timely and appropriate responses as well as completion of evaluations and appropriate interventions are to be done, reported to the TB clinician, and documented on appropriate forms and charts by the coordinating PHN case manager according to TBC standards and procedures.

C. Source Case and Associate Investigation Standards

SCF attempts to determine the source of infection or disease in a child or in a documented converter. Initiating a SCF may yield new cases and a high yield of infected individuals that stem from a common source of infection. Examination of the closest associates is usually all that is necessary, but the investigation may become larger if more infected persons are found and the source case is not immediately apparent.

1. The first priority is a child under the age of four years. If resources allow, source case finding can be attempted for documented converters age four and above if there is a reasonable probability of finding the source.

2. Associates should be evaluated within 14 days of identification of the child or converter. Use the concentric circle of epidemiological investigation (Figure 6-1, page 6-12) as the method of identifying which associates to evaluate first.

3. Evaluation and management of associates are identical to targeted testing of high-risk individuals as described in Chapter Two, page 2-5.

    - Those who are identified as TB class 2 should be referred for LTBI therapy.

    - Persons who have a positive TST of ten (10) millimeters or greater with an abnormal chest radiograph should be evaluated as TB suspects (TB class 5). If recent or current TB disease can be found in those individuals, the person who is closest to the child or converter should be considered the source case.

***Table 6-4**. Management of broken appointments for initial examination in contact investigations*

BA	Higher-risk contact	Lower-risk contact
1st	PHN to reschedule within one week	Close with H-1834
2nd	Notify PHNS and PHI	
3rd	Notify TB clinician for expedient disposition (Legal Order for Exam within 72 hours)	

D. Management of Broken Appointments

Management of broken appointments (BA) differs between higher and lower risk contacts. While contacts diagnosed with TB Class 2 are not required to take LTBI therapy, they should be strongly encouraged to do so. At the very least, all higher-risk contacts must receive a medical evaluation in addition to a chest radiograph to rule out TB. Regardless of risk category, every effort must be made to assist contacts to follow-up within the time frames specified.

Contacts who fail to comply with an initial appointment for examination should be managed according to the schedule on Table 6-4, page 6-10. With the first BA, an attempt to reschedule a higher-risk contact is done by a PHN. With the second BA, the higher-risk contact is referred to the public health nursing supervisor (PHNS) and the district public health investigator (DPHI). With the third BA, the clinician should request a Legal Order for Examination within 72 hours as indicated. A lower-risk contact who breaks the initial appointment is closed and no further attempts are made to reschedule the patient.

Higher-risk contacts who are examined and diagnosed with TB Class 2 but refuse LTBI therapy should be counseled regarding the possibility of future disease. For very high-risk contacts, such as HIV-infected individuals, other immunocompromised individuals, or children under four years of age, the clinician may require that the contact return for periodic examinations to rule out active disease. Attempts should be made to notify these contacts' primary care physician. Documentation of referral and counseling is to be noted in the medical record. All contacts who initiate LTBI therapy with subsequent BAs are managed according to the guidelines in Table 2-8, page 2-12.

Table 6-5. *Management of all contacts with a previously-documented positive TST. Contacts should be evaluated to determine if they have (1) TB symptoms, (2) immunocompromising factors, such as HIV, and (3) documented history of LTBI completion. Each particular circumstance corresponds to the appropriate course of management with regard to obtaining a chest radiograph and treatment of LTBI.*

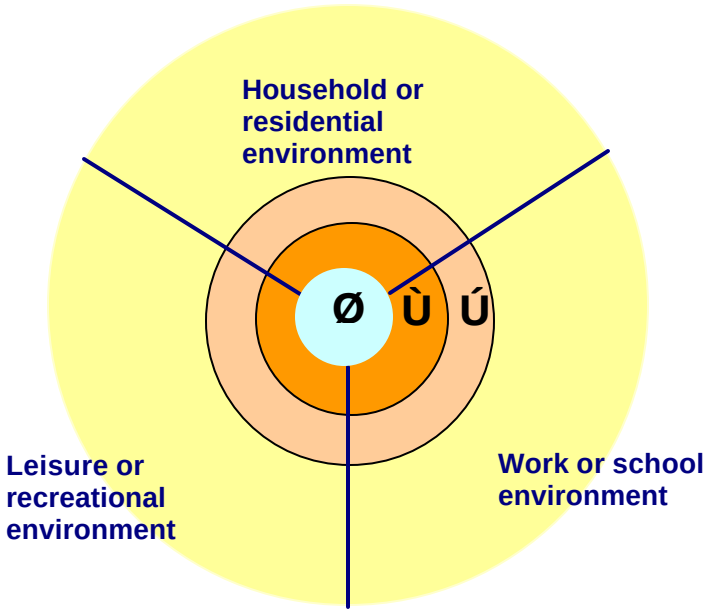
TB symptoms?	Immunocompro-mised?	Completed adequate course of LTBI therapy?	Management	
			Obtain CXR*	**Comments**
Yes			Yes	Clinically evaluate as TB class 5
No	No	No	Maybe	Clinician to assess on case-by-case basis need for CXR and/or LTBI therapy
No	No	Yes	No	No repeat LTBI treatment or further evaluation necessary unless clinical status changes
No	Yes	No	Yes	Refer for full LTBI therapy if CXR normal and active TB disease is ruled out
No	Yes	Yes	Yes	Reevaluate and consider another course of LTBI therapy as indicated

*All patients with abnormal chest radiographs suggestive of TB must be evaluated as TB suspects

Fig 6-1. Concentric circles of investigation

In a **contact investigation**, begin by examining persons in the inner circle who are at higher risk of becoming infected—those with closest exposure in the home, at work or school and in social settings. Then evaluate the results of the higher-risk contact investigation. If there is evidence of transmission to the higher-risk contacts (e.g., a higher than expected number of positive TSTs and/or converters, or secondary active cases), move to the next circle of contacts who are more casual in their exposure at home, at work, at school, or in social settings.

In a **source case investigation**, begin the investigation by examining the closest associates to the child or documented converter. Start by testing close associates in the inner circle and expand the circle if the source has not been identified.



Ø Index case or child under 4 years with positive TST
Ù Close contacts or associates—highest priority
Ú Casual contacts or associates—lower priority

Chapter Seven: Tuberculosis Infection Control

A. General Principles of Infection Control

By coughing, sneezing, shouting, or singing, a person with infectious pulmonary or upper airway tuberculosis (TB) disease may infect others by the airborne route through aerosolization of microscopic droplet nuclei containing *M. tuberculosis* bacilli. Many factors influence the transmissibility of the disease (see Table 7-1 below). Thus, prevention and interruption of TB transmission is the goal of an infection control program.

An effective TB infection control program requires early identification, isolation, and initiation of effective treatment of persons with active TB in order to reduce the risk of transmission. Also essential is the identification of one person to be accountable for TB control concerns. Risk assessment for each staff within a facility must be conducted according to department, occupation, and work assignment.

Three hierarchical levels of infection control comprise all TB infection control programs. **Administrative controls** consist of (1) containment, which refers to the identification and prompt triage of a symptomatic person; (2) employee surveillance, which refers to baseline and periodic TB screening of employees exposed to TB; and (3) employee education. **Engineering controls** are based on adequate ventilation strategies and systems to reduce the concentration of infectious particles in the air, prevent dissemination of these particles throughout the facility, or to kill the tubercle bacilli within the particle. **Personal controls** refer to personal respiratory protection used to filter out infectious particles.

TB infection control programs based on these three levels of controls should be implemented for healthcare facilities, long-term care facilities (LTCFs), correctional institutions, homeless shelters, and other institutions where greater risks of TB transmission exist. This manual details a program individualized for the healthcare setting. However, these controls are adaptable to a variety of non-healthcare settings depending on the risk of TB transmission and other factors.

***Table 7-1**. Factors that influence transmissibility of TB to others*

- *Infectiousness of the patient* (see Table 7-3, page 7-8).
- *Environmental factors*. Factors include air volume, ventilation system, availability of fresh air and sunlight, number or density of persons in a setting.
- *Characteristics of exposed persons*. Includes closeness and duration of exposure, as well as immune status. Table 2-2, page 2-5, lists medical conditions that increase the risk of developing active TB.

B. Infection Screening and Control in Hospitals, Health Centers, and Other Healthcare Facilities

1. Employee Screening and Education Guidelines

Guidelines for TB screening of employees working in healthcare facilities are handled in much the same way as for other persons and are described in Chapter Two, page 2-1. However, such employees may be at higher risk of latent TB infection (LTBI) or TB disease than the general population because of more frequent exposure to infectious TB cases. Therefore, additional guidelines specific to healthcare employees are outlined below.

As with all other individuals, a history of Bacille Calmette-Guérin (BCG) vaccination is not a contraindication for a tuberculin skin test (TST). The Mantoux test is to be performed, and it is required that two-step testing be utilized (as described in Chapter Two, page 2-15) as the initial test for persons who will undergo repeated TB skin testing.

All employee TB screening procedures must follow Cal-OSHA regulations and the LAC Department of Health Services policy *Screening DHS Health Care Facility Workers for Tuberculosis* (see Appendix I). The following procedure is the TB screening policy for LAC Department of Health Service employees:

1. All new employees at healthcare facilities are required to have a baseline TST (two-step method) unless he/she has a documented prior positive TST reaction or a documented negative reaction in the past 12 months. Chest radiograph screening alone without the use of TST is not acceptable. All employees should be asked about symptoms of TB disease.

2. A chest radiograph is required of all persons with positive TSTs, and all persons subsequently classified as TB class 2 should be evaluated for treatment of LTBI as outlined in Chapter Two. Employees with abnormal chest radiographs consistent with TB disease or employees in whom TB disease is suspected (TB class 5) must be excluded from work until physician clearance *in writing* is obtained.

3. The frequency of periodic repeat TB screening is determined by risk assessment. Triage personnel, mycobacteriology laboratory personnel, and health care workers in HIV residential facilities are examples of employees who should have TB screening and symptom review every six months. All other health facility workers should receive TB screening annually. If an employee has high-risk medical or social conditions (such as HIV infection, abnormal chest radiograph), the employee should have an annual chest radiograph unless an adequate course of LTBI treatment has been completed. Otherwise, routine annual chest radiograph screening is not recommended but a symptom checklist is required.

4. The TST conversion rate by work area and/or occupational group must be evaluated monthly. All TST converters must be entered on the Cal-OSHA log. County facilities are required to report screening results, including converters and cases, to TBC quarterly (see Appendix I).

5. TB prevention training must be provided to all employees at least annually and should include the following information:

   - Mode of TB transmission, symptoms, differences between infection and disease, screening, treatment of LTBI and TB disease
   - Individuals at increased risk for occupational exposure to TB, especially those who are immunocompromised
   - Connection between TB and HIV disease
   - Personal protection education and training for fit testing for personal respirators and usage of equipment for assigned staff
   - Instruction to report chronic illness to supervisor
   - Employee and employer responsibility under the workplace Exposure Control Plan

2. Triage and Containment

All staff in receiving areas, including clerical workers, must be trained to notice a person who is coughing, give the person tissues and/or a surgical mask to cover his or her nose and mouth when coughing, and to notify the triage nurse. Such a person must be moved as soon as possible to a safe exam location. During the evaluation, personal protection controls must be used. If the history, symptoms, and signs are compatible with TB, a chest radiograph should be promptly obtained and further evaluation should continue as outlined in Chapter Three, page 3-3.

Standing orders for STAT chest radiographs, sputum exams, and skin testing should be made available to triage personnel for suspected TB cases. If the facility involved is unable to isolate the patient or perform the necessary diagnostic tests, there must be an appropriate referral resource and plan for referral.

3. Engineering Controls

Effective ventilation consists of the following components: (1) effective air change rates (expressed as air changes per hour, or ACH); (2) negative pressure rooms, preventing a higher pressure of air from within the room flowing to areas outside the room; and (3) high efficiency particulate air (HEPA) filters, which are capable of removing over 99.97% of particles $\geq$ 0.3 *Fm* in diameter and/or venting to the outdoors.

Upper room ultraviolet germicidal irradiation (UVGI) is also used as an adjunct to adequate ventilation systems. UVGI lamps can cause damage to skin and eyes and should be installed and maintained per manufacturer's instructions and comply with state and federal regulations.

The following are minimum requirements for atmospheric isolation rooms:

- 12 ACH
- Negative pressure in relation to surrounding area
- Direct exhaust to the outside or HEPA filtration of any air which is recirculated into the ventilation system

The ventilation system must be properly cleaned, maintained, and functional. It must be tested after installation, alteration, and maintenance, and at least annually to ensure it is functioning properly. Records of each test must be kept for five years. All atmospheric isolation areas must be identified and posted when in use as *"Atmospheric Isolation* or *High-Risk Atmospheric Procedure."*

4. Personal Controls

Personal respirators also filter out infectious particles, and must be used by staff assigned to work in these high-risk areas. Respirator fit testing must be employed by staff who will be wearing personal respirators and a written Respiratory Protection Program must be in place at each facility. Los Angeles County (LAC) TB Control Program (TBC) has information and resources about instituting such a program.

Infectious TB suspects must wear a surgical mask while:

- In a room other than a respiratory isolation room
- Being transported within the health facility or by car

Staff must wear a NIOSH-approved N95 or HEPA respirator while:

- In a room with an infectious patient who is undergoing a high risk procedure
- Occupying the room with an unmasked coughing, suspected, or confirmed smear-positive TB patient
- Entering the room previously occupied by an unmasked infectious TB suspect or case before sufficient time to clean contaminated air from the room has elapsed

- Transporting an infectious patient in an enclosed vehicle, even if the patient is masked

- Changing filters in the HEPA filtration machine

Alternatives to personal respirators must be available for persons who cannot be fit tested (e.g., men with beards). Alternatives include Powered Air Purifying Respirators (PAPRs) or reassignment of the employee.

5. Hospital Discharge

A medically stable patient with infectious TB can be treated entirely in the outpatient setting. Therefore, it is not necessary that an individual be non-infectious prior to discharge from the hospital, and the decision to initiate discharge procedures is to be made by hospital medical providers. However, the California Health and Safety Code (H&SC, Section 121361) requires that a written discharge plan for all patients with suspected or known TB disease be provided by health care facilities to the local TBC Program for review and approval prior to patient discharge. This legislation was enacted to provide assurance that appropriate TB treatment will continue outside the hospital (see page 8-8).

6. Return to Non-Isolation Rooms, School, Work, or Other High-Risk Setting

The decision to discharge a TB patient from an isolation room or return to work or school will depend on the factors described in Table 7-2, page 7-6. In addition, the drug resistance pattern (or probability of drug resistance, if susceptibility results are not known) of the TB organism should also be considered before placement in a high-risk setting.

Health care facilities, school, or the workplace are considered high-risk settings, as they are locations in which persons who will share air with the TB patient could be at high risk of being infected and/or developing progression to TB disease. Other high-risk settings include correctional, drug treatment, congregate living, and public living facilities. Patients discharged to home who are still at risk of being infectious must be counseled regarding restrictions concerning leaving home or exposing new persons within the home before being cleared by the health department.

Patients who are known or suspected of having infectious TB should not be placed in or returned to high-risk settings, including transfer within a healthcare facility (discharge from isolation). Patients known or suspected to have TB must be non-infectious according to the criteria listed in Table 7-2, page 7-6. Patients who are returning to lower-risk settings (e.g., an outdoor gardener), may be released to work after a shorter treatment period at the discretion of the clinician. More stringent criteria, including longer treatment prior to discharge, should be considered in special circumstances, such as placement of patients suspected of having multidrug-resistant TB (MDR-TB).

Table 7-2 *Criteria for Placement/Return of TB Patients Living or Working in High-Risk Settings:*

Patient with positive sputum smears
• Has three (3) consecutive negative AFB sputum smear results from sputum collected on different days; AND • Has completed at least two (2) weeks of appropriate multi-drug anti-TB therapy; AND • Exhibits clinical improvement; AND • Has continued close medical supervision, including DOT, if needed; AND • Continues multi-drug therapy, even if another pulmonary process is diagnosed, pending negative culture results from at least three (3) sputum specimens
Patient with only negative sputum smears
• Has three (3) consecutive negative AFB sputum smear results from sputum collected on different days; AND • Has completed a minimum of four (4) days of appropriate multi-drug anti-TB therapy; AND • Has continued close medical supervision, including DOT, if needed; AND • Continues multi-drug therapy pending negative culture results from at least three (3) sputum specimens

C. TB Screening and Control in Long-Term Care and Other Facilities

TB is a greater risk among persons who reside in long-term care facilities (LTCF) than among those in the community. Many residents of these facilities are elderly and some may be immunosuppressed, putting them at greater risk of developing TB compared to the general population. Likewise, TB is a recognized problem in correctional facilities, hospices, drug treatment programs, and homeless shelters. The annual incidence of TB disease in these facilities is greater than in the general population. Factors that influence the high rate of TB in this population include a higher prevalence of HIV disease and injection drug use plus an overcrowded enclosed environment that facilitates transmission of TB. While the groups mentioned above have diverse characteristics, the combination of host and environmental factors make TB an increased threat in these environments. Thus, proper TB screening and management are essential.

1. TB Screening Guidelines for LTCF

The TB screening guidelines below apply specifically to screening in LTCF. However, these screening guidelines are appropriate for screening individuals in drug treatment programs, prisons, or other facilities in which an individual resides for several months or longer.

As discussed in Chapter Two, page 2-1, principles of TB screening are no different than in the general population. As with all other individuals, a history of BCG vaccination is not a contraindication for a TST. The Mantoux test is to be performed, and it is highly recommended that two-step testing (as described in Chapter Two, page 2-15) be employed.

All individuals who are candidates for long-term care facilities are required to have the following done:

1. TB history (see Table 3-4, page 3-3) and symptom screen (see Table 3-1, page 3-1). Any patient who has symptoms consistent with TB, regardless of his/her TST reading should not be accepted into any LTCF until he/she has had a medical evaluation including a chest radiograph, and is medically cleared.

2. Assessment for HIV risk factors (see Table 3-3, page 3-2). If risk factors are present, HIV counseling and antibody testing is recommended unless the person is known to be HIV-infected or has had a negative HIV test within the last six months.

3. Mantoux TST not more than 90 days prior to or seven days after admission in patients who have a previously-negative TST or no documented history of a previously positive TST.

    - Individuals with a documented history of a positive TST should not receive a TST.

    - Chest radiograph screening alone without the use of TST is not acceptable.

    - Residents transferred from a hospital or another LTCF do not need a TST repeated if documentation of initial screening has been received.

Additional Screening Guidelines for HIV-Infected Persons

Individuals who are HIV-infected or at risk for HIV infection, regardless of TST, must have a chest radiograph within 30 days prior to admission. A transfer resident from another LTCF must have another chest radiograph obtained if the initial chest radiograph was done more than three months prior to transfer.

Screening Guidelines for Previously-Known TB Suspects and Cases

Pulmonary TB cases may be admitted to LTCF under the guidelines provided in Table 7-3 below. In all cases, close medical supervision is required along with administration of directly observed therapy (DOT). All admissions or transfers of TB suspects and cases must be reported to TBC even if previous notification was given.

***Table 7-3**. Factors correlating with infectiousness of a TB patient*

- Extensive disease in the lungs, airways, or larynx
- Presence of cough
- Presence of AFB in the sputum smear
- Presence of infiltration or cavitation on chest radiograph
- Failure of the patient to cover the mouth and nose when coughing
- Inappropriate, short duration, or non-adherence to chemotherapy
- Poor clinical or bacteriologic response to therapy

2. Management and Infection Control

Management of a Positive TST

1. HIV-infected individuals, contacts, persons with abnormal chest radiographs consistent with TB, and immunosuppressed persons with $5 millimeters induration are considered TST-positive. For most other individuals, $10 millimeters induration is considered positive (see Chapter Two, page 2-3, for details).

2. Any resident with a positive TST or those with a documented prior positive TST should have a chest radiograph for evaluation within *one week* of admission.

3. If the radiograph is normal and no TB signs or symptoms of TB are present, the patient is classified as TB class 2 and no further tests are required. Repeat screening is not necessary unless the resident becomes symptomatic or is exposed to an infectious case of TB. All TB class 2 LTCF residents are potential candidates for treatment of LTBI and should be evaluated and treated according to the procedures described in Chapter Two, page 2-8.

Management of TB Suspects Who are Possibly Infectious

1. A physician must evaluate residents with abnormal chest radiographs suggestive of TB disease. Sputa should be collected for acid-fast bacilli (AFB) smear and culture (see Table 7-2, page 7-6, and Table 7-3, page 7-8).

2. Any patient who develops symptoms of TB, regardless of his or her TST reading, should have a chest radiograph and immediate physician consultation. In addition, symptomatic patients who are febrile or coughing should be moved as soon as possible to a private room pending physician consultation. The patient should wear a surgical mask and the health care worker must wear a NIOSH-certified respirator during the evaluation.

3. Patients with positive AFB smears must be isolated. Treatment of TB disease should be initiated as described in Chapter Four, Tables 4-1 and 4-2a, page 4-2, and the patient should be transferred to an acute care hospital with isolation facilities unless the LTCF has a respiratory isolation room with negative pressure.

Management of Known TB Cases and Suspects Who are Not Infectious

1. Patients with sputum smears negative for AFB and on TB therapy for a minimum of four days do not need respiratory isolation or a private room (see Table 7-2, page 7-6). Masking of patients and staff is not necessary. However, a coughing patient should be instructed to cover his or her nose and mouth with tissues during coughing.

2. Patient should remain on an appropriate TB regimen given by DOT.

3. Repeat sputum examinations for AFB smear and culture should be obtained on a monthly basis as recommended (see Table 5-2, page 5-3). Liver function tests, other appropriate laboratory tests, and clinical monitoring for drug toxicity should be ordered at least monthly (see Chapter Five, pages 5-3 and 5-4).

3. TB Screening for Drug Treatment Programs

The TB screening requirements for a drug treatment program in LAC are similar to that for LTCF (see Appendix P, CDHS/CTCA Joint Guidelines, *Tuberculosis Screening Guidelines for Drug Treatment Programs in California).*

D. TB Screening in Los Angeles County Schools

Since 1985, the LAC School Skin Test Mandate requires all kindergartners and students who have never previously attended school in California to provide written documentation of a Mantoux skin test result and chest radiograph if TST is positive. All LAC K-12 schools are required to submit to TBC a report on an annual basis describing the number of US and foreign-born students tested, their skin test results, and the number of waivers/exemptions based on personal beliefs or indications that the test is medically contraindicated. In addition, school personnel and volunteers who have contact with students and children in licensed day care settings are required to be screened for TB.

The following persons are required to be screened for TB infection.

- All entering kindergarten students
- All entering first-grade students who never attended kindergarten
- All transfer students grades 1-12 who never attended any school in California
- All children enrolling in a child care facility who have risk factors for TB
- All employees and volunteers in K-12 schools and child care facilities

Details regarding TB screening in Los Angeles County schools are listed in Appendix K, *Tuberculosis Screening Requirements for Schools and Day Care Centers in Los Angeles County.*

E. TB Transmission During Air Travel

The risk of TB transmission during air travel is very low. Several factors, such as the infectiousness of a passenger, the duration of flight (greater than eight hours is considered significant), and the interval of time since air travel occurred, must be taken into consideration prior to airline notification and possible investigation.

The TBC Program has outlined a procedure for notifying airlines of potential TB exposure:

1. The TB clinician or area medical director in consultation with a TBC physician is to first determine if the passenger is likely to have infectious TB.

2. If the person is likely to have infectious TB, the PHN case manager will gather specific flight information (point of departure and destination, flight number, and seat number) and notify the TBC infection control coordinator of the situation as soon as possible. The TB controller or designee will then make a determination as to whether airline notification is indicated.

3. If it is determined airline notification is indicated, the TBC infection control coordinator will contact the airline (preferably the medical director for the airline) to notify them of the potential exposure and TBC recommendations. Summaries of the case and copies will be provided to involved parties.

F. Screening in the Los Angeles County Jail System (LACJS)

A large percentage of the inmates admitted to LACJS are at increased risk of having tuberculosis. Inmates and LACJS employees are also at increased risk of being exposed and infected with tuberculosis while incarcerated or working in this congregate living setting. To reduce the risk of admitting persons with infectious tuberculosis into LACJS and thus decrease the risk of transmission, a program to screen all inmates at the time of booking has been in place for many years. Because of the large number of admissions per day and relatively short duration of incarceration in LACJS, screening consists of a chest mini-radiograph (mini-CXR) rather then a skin test. This allows for quick detection of suspect or active disease as seen on the mini-CXR and more rapid initiation of treatment. The mini-CXR allows for large numbers of inmates to be screened in a reasonably short time. The radiologist can read the mini-CXR rapidly, within 24 hours.

In addition to the mini-CXR, all inmates view a Los Angeles County Sheriff's Department video in which they are directed to notify medical staff of any health related conditions of which they are aware. Inmates also have an interview with a nurse who takes a TB history.

A Tuberculosis Control Program liaison public health nurse (LPHN) is assigned full-time to work with LACJS staff to help process suspects and cases and arrange for appropriate follow-up at the time of discharge. Most suspects have a standard chest radiograph done and treatment started before they are discharged or transferred. When necessary, the TBC PHIs can place a 72-hour **public health hold** on a TB suspect or case before they will be released. This allows time for adequate follow-up to be established before discharge. The LPHN will inform the public health district of residence when a known case or suspect has been incarcerated. It is also important for the health district to inform the LACJS LPHN or the TBC Program if they know of a suspect or case of tuberculosis from their district that has been incarcerated in LACJS.

Chapter Eight: Legal Aspects of Tuberculosis

Tuberculosis (TB) remains a major threat to the public's health due to its mode of transmission. To protect the public, the California Health and Safety Code (H&SC) and California Code of Regulations (CCR) include specific mandates for the local TB health officer, health care providers, TB laboratories, and health care institutions. This chapter gives an overview of certain legal aspects of TB as it relates to Los Angeles County (LAC), outlines the legal mandates of the local health officer (or TB controller), reviews reporting requirements for health care providers and institutions, and provides specific guidelines for the Public Health Centers (PHCs) to notify LAC TB Control Program (TBC) about problems which may require legal action.

A. Health Officer Orders

1. Types of Health Officer Orders

Each local health officer is directed to use every available means to ascertain the existence of, and immediately investigate all reported or suspected cases of active tuberculosis disease in the jurisdiction, and to ascertain the sources of those infections. If the local health officer determines that the public health in general or the health of a particular person is endangered by exposure to a person who is known to have active tuberculosis disease, or to a person for whom there are reasonable grounds to believe has active tuberculosis disease, the local health officer may issue any orders he or she deems necessary to protect the public health or the health of any other person, and may make application to the court for enforcement of the orders.

A Civil Order for Detention can be sought only after less-restrictive alternatives to detention that have been attempted or were considered and rejected have been documented. Subsequent to the detention of an individual in a health facility or other treatment facility, the TB controller, in coordination with assigned county counsel, is required to obtain a court order authorizing the individual's continued detention. See Table 8-1, page 8-3, for information on interventions that should be attempted to promote patient adherence prior to initiating a request for a Civil Order for Detention.

The following are the health officer orders that are used in Los Angeles County:

Order for Examination

This order authorizes the TB controller to bring in for examination a person who is known to have active TB disease, or for whom there are reasonable grounds to believe has active TB disease and who is unable or unwilling to voluntarily submit to an examination by a physician.

Order to Complete a Course of Directly Observed Therapy (DOT)

The Order for Directly Observed Therapy authorizes the TB controller to order a person who has active tuberculosis disease, but who is unable or unwilling to complete an appropriate prescribed course of medication, to follow a course of directly observed therapy. Although this order does not allow forcible or involuntary administration of medication, it is a less-restrictive measure that often elicits voluntary patient compliance with prescribed treatment.

Order for Detention for the Purpose of Completion of Treatment

The Order for Detention for the Purpose of Completion of Treatment authorizes the TB controller to detain a person who has active TB disease, or has been reported to the Controller as having active TB disease with no subsequent report of the completion of an appropriate prescribed course of medication for TB disease. There must also be a substantial likelihood, based on the person's past or present behavior, that he or she cannot be relied upon to participate in or complete an appropriate prescribed course of medication for TB disease, and, if necessary, follow required infection control precautions for TB disease. The behavior may include, but is not limited to, refusal or failure to take medication for TB disease, refusal or failure to keep appointments for TB disease, refusal or failure to complete the treatment for TB disease, or disregard for infection control precautions for active TB disease.

Order for Detention for the Purpose of Isolation

The Order for Detention for the Purpose of Isolation authorizes the TB controller to detain in a health facility or other appropriate treatment facility a person who has infectious TB disease, or a person who presents a substantial likelihood of having infectious TB disease, and there is a substantial likelihood that the person may transmit TB to others because of his or her inadequate voluntary separation from others.

2. Serving Legal Orders—Public Health Investigation

The PHI staff has the responsibility for investigating lost or recalcitrant TB patients and returning them to treatment. In general, (except for the order to complete a course of DOT), they serve legal orders to patients and may take legal action against a TB patient who violates an Order for Examination (e.g., file a criminal complaint with the district attorney's office, serve an arrest warrant, appear in court and testify as to the circumstances of the case). PHI staff members may also transport TB patients to clinics, hospitals or custody facilities to ensure continuity of care. PHI staff also serves as consultants to the health district and district PHI staff regarding investigation techniques and indications for legal orders.

***Table 8-1**. Examples of interventions to promote patient adherence prior to initiating a request for a Civil Order for Detention*

- Education regarding TB diagnosis and treatment
- Directly observed therapy
- Enablers (bus tokens, other modes of transportation)
- Incentives (food, clothing)
- Single-room occupancy housing
- Social or mental health services
- Placement in substance abuse rehabilitation

3. Inter-Region Detention Center

The H&SC states that persons requiring civil detention for reasons related to their TB disease must not be housed in a correctional facility. Since 1999, the LAC Inter-Region Detention Center has provided an integrated approach for the civil detention of persistently recalcitrant or chronically sputum smear-positive TB patients. As of July 2002, these facilities include acute and skilled nursing care at High Desert Hospital located in Lancaster, California and long-term patient supervision and substance abuse rehabilitation services at the Antelope Valley Rehabilitation Centers located in Acton, California. A detention coordinator is employed by TBC to facilitate and monitor the process. These services are also available to all California jurisdictions that have signed a memorandum of understanding with LAC.

4. Procedures for Requesting Orders for Examination, DOT, or Civil Detention

An Order for Examination, DOT, or a Civil Order for Detention can only be issued by the TB controller. However, staff working within the LAC Department of Health Services may request the TB controller issue a Civil Order for Detention if it is believed that a particular individual is a threat to public health. A decision to request a Civil Order for Detention is complex and involves multiple issues such as communicability, length of therapy completed, past and present adherence to infection control protocols, past and present adherence to TB medication regimens, and success or failure of less-restrictive alternatives to detention. As a guide, patients who meet one or more of the criteria in Table 8-2, page 8-6, may be considered for a Civil Order for Detention. In addition, Table 8-1, page 8-3, describes various interventions to promote patient adherence that should be considered prior to initiating a request for a Civil Order for Detention.

Procedure for Processing an Order for Examination

1. An Order for Examination may be requested by a TB clinician, area medical director, a TB liaison nurse in a County hospital, a hospital physician, or a public health nurse (PHN).

2. The TBC form, *Request for Legal Intervention* (form H-455) is submitted to the district PHI.

3. If the district PHI is unable to locate the patient, PHI staff at TBC is notified and the Order is subsequently served.

Procedure for Processing an Order for DOT

1. The PHC physician shall contact the Detention Coordinator of the TBC to obtain a blank Legal Order of Directly Observed Therapy (LODOT) form on which the PHC physician shall document that the patient has evidence of active TB.

2. On the LODOT form, the TBC physician must specify the anti-TB regimen that is currently prescribed for the patient and the recommended duration of treatment (e.g., Rifamate 2 caps daily until June 30, 2002).

3. The PHC physician must document all less-restrictive measures that have failed to result in the patient complying with DOT, and why a less-restrictive alternative is being rejected. Such less-restrictive measures may include: food vouchers, housing arrangements provided by TB Control Program, and transportation vouchers. The Public Health physician must also document dates and descriptions of the patient's past or present behavior that indicates he or she has not complied with previously-prescribed DOT. Examples of noncompliance include broken clinic appointments and missed doses of DOT.

4. The PHC shall submit the LODOT (containing documentation of noncompliance and failure of less-restrictive measures) to the Area Medical Director (AMD) for review and approval.

5. If approved by the AMD, the PHC physician shall call a TBC physician to discuss the aforementioned information. If the TBC physician agrees that a LODOT is warranted, the PHC physician shall send the completed and signed LODOT form to the TBC Detention Coordinator who will bring the LODOT to the Director of TBC or his/her designee for review and signature.

6. The TBC Detention Coordinator will then return the signed form to the PHC physician who is responsible for serving the order to the patient in person in the clinic. Even if the patient refuses to sign, the document must be signed and dated by the PHC physician and a translator/witness. A copy of the signed LODOT shall be given to the patient, a second copy is to be given to the TBC Detention Coordinator, and the original signed document must be filed in the patient's chart.

Note: This procedure should not involve Public Health Investigators unless the patient must first be located and brought to clinic in order to be served with a LODOT by the PHC Physician.

Procedure for Processing a Civil Order for Detention

1. The PHC TB clinician, area medical director, or private physician may request a Civil Order for Detention by completing the request for Legal Intervention (form H-455).

2. The PHC physician shall submit a signed summary that documents the evidence supporting the patient's diagnosis of active TB and the reason the patient is considered infectious. Brief mention of the patient's underlying medical problems (including neuropsychiatric) is also appropriate. The physician's summary must also document the incidents of noncompliance and related behaviors that show the less-restrictive measures have failed (see Appendix E). Instances of noncompliant behavior must be listed by date in chronological order. Documentation in the medical chart must support each statement that is made in the summary. Noncompliant behavior documented in other medical charts (e.g., in the hospital) should be included if available. Examples of the additional information that should be documented in the physician's summary include: broken clinic appointments or refusing to cooperate with necessary medical tests (e.g., sputum collection); DOT that was missed and/or refused; moving or traveling without notifying the health department and against medical advice; not complying with instructions on home isolation or respiratory isolation in a health facility; refusal to accept or appropriately use incentives and enablers including food coupons, transportation vouchers, housing; returning to work before being given clearance by the physician (in other words, returning to work against medical advice); using public transportation despite being counseled to avoid doing so while infectious.

3. The *Checklist in Support of a Request for a Civil Order for Detention* and the PHC physician's summary supporting the request for the Detention Order must be faxed to TBC (see Appendix E for example of form). The TBC physician responsible for detention will review the document.

4. The TB Controller agrees (or disagrees) that there is sufficient evidence to support a Civil Order for Detention. If indicated, the order is then processed by the detention coordinator, who then forwards it to the TBC PHI staff to serve the order.

***Table 8-2**. Patients for whom a request for a Civil Order for Detention should be considered*

Hospitalized TB Class 3 or 5 patients
• Refuses hospital respiratory isolation
• Threatens or leaves the hospital against medical advice
• Refuses to take anti-TB medication
• Refuses to mask or cover cough when instructed to do so
• Refuses to submit sputum specimens
TB Class 3 or 5 patients under public health center supervision
• Misses clinic appointments*
• Misses doses of anti-TB medicines or refuses DOT*
• Refuses to take anti-TB medication
• Refuses to mask or cover cough when instructed to do so
• Refuses to submit sputum specimens
• Refuses to restrict self from work or worked against medical advice
• Moves without notifying LAC health department
• Violates *Civil Order for Examination*
• Violates *Order to Complete a Course of Directly Observed Therapy*
• Refuses hospitalization for isolation and/or treatment

*See Appendix O, *Detention Communication Protocol* for further details

B. Reporting Requirements

The reporting requirements for health care providers, health care facilities, and laboratories are derived from the H&SC, the CCR, and reporting policies from TBC. These requirements are summarized in Table 8-3, page 8-7. Prompt reporting allows the local health officer to take quick action, which includes verifying the diagnosis, determining whether an outbreak is occurring, and controlling the spread of the disease.

1. Health Care Providers

Health care providers are required to notify TBC of all cases of suspected or known TB disease within one working day of identification. To initiate source case investigation (see Chapter Six, page 6-9), all children less than four years of age are also reportable to TBC if they are found to have positive tuberculin skin tests (TSTs). For these cases, *The Confidential Morbidity Report of TB Suspects and Cases* (CMR) is to be completed and faxed to TBC within one (1) working day of identification (see Appendix E for example of form). The Public Health Center will subsequently be notified.

***Table 8-3**. Reporting requirements for health care providers, institutions, and laboratories*

Reportable condition		Procedure
Healthcare providers	All cases of suspected or known TB disease	*Confidential Morbidity Report of TB Suspects and Cases* (CMR) faxed to TBC within one working day of identification
	All persons who are non-compliant with their TB regimen or fail to keep scheduled appointments	*Request for Legal Intervention* (H-455) or direct consultation with TBC physician
	All patients less than four years of age with latent TB infection	CMR faxed to TBC within one working day of diagnosis
Healthcare facilities	All cases of suspected or known TB disease	*Confidential TB Suspect Case Report* (H-803) faxed to TBC within one working day of identification
	For all hospitalized TB suspects or cases, provide a written discharge care plan prior to discharge	*TB Discharge Care Plan* (H-804) faxed to TBC or submitted to the TB Liaison Nurse (County hospitals)
	All TB suspects and cases who refuse or cease treatment or are non-compliant with their TB regimen	*Request For Legal Intervention (H-455)* or direct consultation with TBC physician
Labs	All test results that show any laboratory evidence suggestive of TB, such as smears or cultures positive for AFB or pathology	*Confidential Laboratory Report* faxed to TBC on the same day that the clinician who submitted the specimen is notified

Failure to Report

Failure to report threatens public health if it results in delayed contact investigation (CI) of an infectious case or adverse outcome of a patient's treatment (e.g., newly-acquired drug resistance due to nonadherence). Failure to report may result in a citation and/or fine. By definition, a physician's failure to report includes the following:

- No report received.
- Incomplete reporting when all requested information is known but not provided in the required time frame.
- Delayed reports that do not adhere to the required time frame.

2. Health Care Facilities

Hospitals and other health care facilities are also required to report suspected or known TB cases to TBC. *The Confidential TB Suspect Case Report* (form H-803) should be used for that purpose and TBC must be notified within one (1) working day (see Appendix E for example of form). Legal intervention may also be required for patients who refuse treatment or are nonadherent with their prescribed TB regimen as described above.

Discharge of a TB Suspect or Case From a Health Facility

The H&SC states that the local health officer must receive and approve written discharge plans for hospitalized patients with an actual or suspected diagnosis of TB prior to patient discharge (H&SC 121361). The statute also requires notification of transfer or release of persons with TB in State correctional facilities or in local detention facilities. This plan must be submitted to TBC prior to discharge from the facility using the *TB Discharge Care Plan* (see Appendix E for example of form H-804). A written response on form H-804 will be given by TBC within 24 hours of receipt of the discharge plan. In County hospitals, the hospital TB liaison nurse (LPHN) will assess the information entered on form H-804 and determine the appropriateness of discharge under the TB controller's supervision. This may include PHN home evaluation. If the discharge plan is appropriate, the LPHN will grant discharge approval for TB Control and make an appointment for outpatient follow-up at the Public Health Center. If the discharge plan is not appropriate, the LPHN will communicate the disapproval for discharge to the treating physician and outline criteria needed for discharge approval. The Surveillance Unit at TBC handles these services for the patients in the private sector.

3. Laboratories

All laboratories are required to ensure rapid and high-quality laboratory examination of specimens submitted for TB evaluation. All test results which show any laboratory evidence of TB, such as sputum or tissue smears positive for acid-fast bacilli (AFB), cultures with AFB growing, or any pathologic evidence for TB, must be reported to TBC on the same day that the clinician who submitted the specimen is notified.

Laboratories must also submit primary isolates of TB (first-positive cultures) to the Public Health Laboratory (PHL), which is required to retain these specimens for at least six months. A subculture of multidrug-resistant TB (MDR-TB) isolates must be sent to the State TB laboratory.

C. TB Alien Waivers

The following protocols reflect the current policies of the Immigration and Naturalization Service (INS) and the United States Public Health Service. The Division of Quarantine (DQ) within the Centers for Disease Control and Prevention (CDC) provides the INS with medical screening guidelines for foreign-born individuals seeking permanent admission into the United States.

For individuals fifteen (15) years of age and older, the TB evaluation consists of a chest radiograph and AFB sputum smears if the radiograph is abnormal. (In most countries, only a chest radiograph is done.) Individuals with abnormal chest radiographs are then classified as Class A, B1, or B2 (see Table 8-4, page 8-10). All Class A, B1, and B2 immigrants are classified as TB suspects (TB Class 5) until evaluated by the Public Health Center TB clinician. In children under age fifteen, no TST or CXR is required for legal immigration.

1. The quarantine station initiates the *Report on Alien with Tuberculosis* (CDC form 75.17), which is then sent to TBC. The district public health center is subsequently notified and copies of CDC form 75.17 and form 157, *Medical Examination of Applicants for United States Visas* are sent to the district public health center (see Appendix E, for an example of form CDC 75.17 only).

2. Upon notification, the district public health center should schedule a clinic appointment within the time period specified in Table 8-4, page 8-10. If unable to contact the patient, a home visit and letter should be sent to the immigrant's address. If still unable to locate or person is uncooperative, PHI intervention and/or legal orders may be necessary.

3. The history and physical examination should proceed as for other TB suspects as outlined in Chapter Three, Table 3-4, page 3-3. The patient should be classified as TB Class 5 unless otherwise directed by the clinician. If it is determined that the individual is TB Class 2 or 4 he or she should be referred for appropriate therapy (see Table 2-4, page 2-6).

4. Documentation for the immigrant suspected of having or known to have TB should be done on the same forms as other TB Class 5 patients, and includes forms H-290, H-304, H-513 and H-2546. (See Appendix E for examples of forms.)

5. The district PHC returns the completed forms to TBC. TBC is responsible for completion and return of the CDC form 75.17 to the INS.

D. Transferring Care to Other Health Jurisdictions

To ensure the continuity of care for all patients with known or suspected TB, TBC and the receiving jurisdiction should be provided with the proper information as soon as possible.

- For TB Class 2 (contacts, converters, or reactors), 3, or 5 individuals who move outside LAC, the PHN must complete the *California Confidential TB Referral Form* (see Appendix E for example of form H-20). The form is faxed to both TBC and the receiving jurisdiction within one working day, except for Class 2 reactors, in which case the form can be mailed to the receiving jurisdiction.

- For persons who are hospitalized at the time of transfer to a new jurisdiction, the *Hospital Tuberculosis Report* (see Appendix E for example of form H-1365) must be attached to form H-20 (if the patient is being transferred from a public hospital). A written discharge plan and approval from TBC are still required prior to transfer. TBC is responsible for faxing the discharge plans to the receiving jurisdiction. More complete details are in Appendix R, CHDS/CTCA Joint Guidelines, *Inter-Jurisdictional Continuity of Care Policy Statement.*

- The TB clinician must close form H-513 as "Moved outside LA County," which must then be submitted to TBC.

Table 8-4*. Description of TB alien waivers and follow-up time from notification*

Class	Description	Follow-up
A	TB, infectious (positive sputum AFB)	As soon as possible
B1	TB, clinically active, not infectious (negative sputum AFB)	Within 1 week or ASAP
B2	TB, not clinically active	Within 2 weeks

Chapter Nine: Educational Services

Background

The Tuberculosis Control Program of Los Angeles County is charged with protecting and promoting the health of the public. Health education is a vehicle designed to effect changes in the public's knowledge, attitudes, and behaviors in order to prevent disease and promote health. Title 17 of the California Administrative Code mandates the following:

> "Health education programs, including, but not necessarily limited to staff education, consultation, community organization, public information, and individual and group teaching, are to be planned and coordinated within the department and with schools, public and voluntary agencies, professional societies, and civic groups and individuals."

In order to realize these goals and achieve the Program's mission of controlling tuberculosis in Los Angeles County, Health Education Unit staff is responsible for developing, implementing, and evaluating professional, patient, and community education programs that are intended to increase awareness and knowledge of tuberculosis. Programs are developed under the direction the Health Education Unit and professional staff.

B. Scope of Program Activities

1. Professional Education

The Health Education Unit with professional program staff develop a proactive education program to meet the needs of professionals within the Department of Health Services and in outreach to the private medical community. Educational programs are specifically targeted to include physicians, nurses, epidemiologists, public health investigators, health educators, medical and nursing students, community outreach health workers, and non-medical professionals with an interest in tuberculosis. Specific courses have been developed with modular curriculum formats that are customized to the core audience.

Courses and in-services are publicized three times annually via an education calendar, through monthly departmental flyers, and via updates on the Program's internet website. The Los Angeles County Tuberculosis Control Program's approach to instruction has been highly successful and has been adopted by other public health agencies and jurisdictions within and outside of the state of California.

Table 9-1. TBC Program professional education courses and conferences

Program	Description
TB Conference	A monthly lecture series for multiple professional groups offering a broad update on current issues related to the management of tuberculosis. Formats include lectures, discussions, case presentations, and review of radiographs.
Physician Case Presentations	A bi-monthly forum, designed to provide an intensive review of TB cases and radiologic films. Participants are also provided with an update of the current medical literature.
Physician Credentialing and Re-Credentialing Review Course	A course offered to physicians who apply to the TB Control Program for credentialing status. The course prepares participants to take a written examination. Following successful completion of the exam, clinical proctoring and medical records review are undertaken prior to granting the status of credentialed physician. Credentialing is valid for a two-year period followed by a review of continuing medical education records and clinic practices to maintain credentialed status.
Extended Role Nurse Course	A five-day intensive course designed to train RNs to supervise the care of selected patients in TB clinics. The ERN, functioning under a protocol and standardized procedures, primarily follows patients under management for latent TB infection (LTBI) but can also follow uncomplicated patients with TB disease.
Extended Role Nurse Re-Certification	A one-day course which fulfills the requirements for maintenance of active ERN status. ERNs are required to be re-certified every three years.
Extended Role Nurse Quarterly Inservice	A one-hour course designed to provide the ERN with an update of issues pertaining to caseload management.
TB Basics: **"TB 101"**	A half-day course which reviews TB epidemiology, transmission, pathogenesis, infection control, screening, diagnosis and treatment. This course fulfills the pre-requisite for ERN training.
Tuberculin Testing Class	A three-hour course designed to train licensed medical personnel (physicians, nurses, and nurse practitioners) in appropriate Mantoux skin test placement and interpretation.
Community Health Worker "TB 101"	A half-day course designed to train outreach health workers from community based organizations to provide tuberculosis education to high-risk population groups. Many of the same topics covered in the TB Basics class are offered in this course.
Public Health Grand Rounds	A bi-monthly conference sponsored by the California Department of Health Services offering interactive telephone conferencing among a variety of public health professionals on a broad cross section of health care issues.
TB For Supervisors	A one-day course for nurses who supervise medical staff who work with the TB patient. The course covers aspects of surveillance, case management, evaluating results of screening and contact investigations, and program planning evaluations.
Case Management and Contact Investigation	A one-day course for public health nurses who manage the TB patient. The course covers aspects of case management, promotion of adherence, reporting, and contact investigation.

The Health Education Unit collaborates and participates with local, state, federal, and international health agencies to develop training programs that build on an existing knowledge base and expand new knowledge and skills among a diversified workforce. Samples of the types of courses or activities that are offered at the TB Control Program are included in Table 9-1, page 9-2. Some of these offer continuing medical education credits to eligible professionals.

2. Educational Resource Materials

The Health Education Unit supports patient and professional education activities within the Department of Health Services' outpatient clinics and hospitals, and in facilities within the private medical community by providing resource materials designed to enable physicians, nurses, health educators, and community health workers to teach patients and their families about the importance of correctly managing their disease.

The Unit maintains an extensive patient and professional resource library and provides both private and public institutions access to these materials. The Unit also produces special educational materials to meet identified needs when the materials are not available elsewhere. Educational resources are available in multiple languages and include pamphlets, brochures, videotapes, posters, self-study materials, course syllabuses, article reprints, clinical care guidelines, and reports from the Centers for Disease Control and Prevention. Forms for requesting resource materials are included in Appendix E.

3. Community Education

Recognizing the need for community involvement in the maintenance of optimal health, the Health Education Unit actively participates in community-wide programs and events, including lectures, health fairs, TB screening events, and other outreach activities. One of the most successful efforts to educate the community has been realized through the "train-the-trainer" approach. Community outreach workers from selected community based organizations who are trained to offer "TB 101" presentations or to conduct one-to-one or group teaching function as an extension of the TB Control Program's Health Education staff and are able to reach a variety of individuals with particular consideration for their ethnic, cultural, and linguistic diversity.

Appendix

Appendix A. Additional Reading Material*

1. Institute of Medicine (US). Ending neglect: the elimination of tuberculosis in the United States. Washington: The Institute; 2000.

2. Small PM, Fujiwara PI. Management of tuberculosis in the United States. N Engl J Med 2001; 345:189-200.

3. American Thoracic Society, Centers for Disease Control and Prevention. Diagnostic standards and classification of tuberculosis in adults and children. Am J Respir Crit Care Med 2000; 161:1376-95.

4. American Thoracic Society, Centers for Disease Control and Prevention. Targeted tuberculin testing and treatment of latent tuberculosis infection. Am J Respir Crit Care Med 2000; 161:S221-47.

5. American Thoracic Society, Centers for Disease Control and Prevention. Treatment of tuberculosis and tuberculosis infection in adults and children. Am J Respir Crit Care Med 1994; 149:1359-74.

6. Goble M. Drug resistance. In: Friedman LN editor. Tuberculosis: current concepts on treatment. Boca Raton: CRC Press; 1994. p.259-84.

7. Centers for Disease Control and Prevention. Updated guidelines for the use of rifabutin for the treatment and prevention of tuberculosis among HIV-infected patients taking protease inhibitors or nonnucleoside reverse transcriptase inhibitors. MMWR Morb Mortal Wkly Rep 2000; 49:185-9.

8. Burman WJ, Jones BE. Treatment of HIV-related tuberculosis in the era of effective antiretroviral therapy. Am J Respir Crit Care Med 2001; 164:7-12.

9. Centers for Disease Control and Prevention. Core curriculum on tuberculosis: what the clinician should know. 4th ed. Atlanta: U.S. Department of Health and Human Services; 2000.

10. Centers for Disease Control and Prevention. Guidelines for preventing the transmission of *Mycobacterium tuberculosis* in health-care facilities, 1994. MMWR Morb Mortal Wkly Rep 1994; 43 (RR-13): 1-132.

For current information, please refer to the public health web sites listed on page A-4.

To obtain any of the following materials, please contact the staff in the Health Education Unit at (213)744-6229.

Appendix B. Abbreviations Used in the Manual

ACH	Air exchanges per hour
AFB	Acid-fast bacilli
AIDS	Acquired immunodeficiency syndrome
ALT	Alanine aminotransferase
ARV	Antiretroviral
AST	Aspartate aminotransferase
BA	Broken appointment
BCG	Bacille Calmette-Guérin
CalOSHA	California Occupational Safety and Health Administration
CBC	Complete blood count
CCR	California Code of Regulations
CDC	Centers for Disease Control and Prevention
CDHS	California Department of Health Services
CI	Contact investigation
CMR	Confidential Morbidity Report
CNS	Central nervous system
CTCA	California Tuberculosis Controllers' Association
CXR	Chest radiograph or chest X-ray
DOT	Directly observed therapy
EMB	Ethambutol
ERN	Extended role nurse
GI	Gastrointestinal
HEPA	High efficiency particulate air
HIV	Human immunodeficiency virus
H&SC	California Health and Safety Code
INH	Isoniazid
LAC	Los Angeles County
LFT	Liver function tests
LTBI	Latent tuberculosis infection
LTCF	Long-term care facility
MDR-TB	Multidrug-resistant tuberculosis
NIOSH	National Institute for Occupational Safety and Health
NNRTI	Non-nucleoside reverse transcriptase inhibitor
NRTI	Nucleoside reverse transcriptase inhibitor
PAS	Para-aminosalicylic acid
PHC	Public health center
PHI	Public health investigator
PHL	Public health laboratory
PHN	Public health nurse
PHNS	Public health nursing supervisor
PI	Protease inhibitor
PPD	Purified protein derivative
PZA	Pyrazinamide
RFB	Rifabutin
RIF	Rifampin
RVCT	Report of Verified Case of Tuberculosis
SCF	Source case finding
SM	Streptomycin
SPA	Service Planning Area
TB	Tuberculosis
TBC	Los Angeles County Tuberculosis Control Program
TST	Tuberculin skin test
UVGI	Ultraviolet germicidal irradiation

Appendix C. Standard Definitions

High-risk setting	Any environment where tuberculosis is likely to be transmitted to a non-infected person by a person with infectious TB.
Broken appointment	A scheduled clinic visit to see a physician or ERN that is not kept and was not rescheduled in advance
Contact	Persons exposed to someone with infectious TB disease, generally including family members, roommates or housemates, close friends, co-workers, classmates, and others. **High-risk contacts** are persons who are at higher risk to become infected with TB or progress to active TB disease. **Low-risk contacts** are persons who are at lower risk to become infected or progress to active TB disease.
Conversion	Defined as an increase of at least 10mm in size from under 10mm to greater or equal than 10mm within two years resulting in a change from a documented negative to positive TST. **TST conversion for contacts**: Defined differently from a standard skin test conversion. For contacts, a skin test conversion is defined as an increase of at least 5mm, from less than 5mm on the initial skin test to a reaction of greater than or equal to 5mm on the second test, 10 to 12 weeks after exposure.
Erythema	Redness of the skin: this may occur around the tuberculin test site and is not significant when reading a skin test
Index case	The first person that presents for evaluation and is suspected of having or confirmed to have TB disease.
Induration	An elevated firm thickening of the skin
Intradermal	Within the dermis (just under the epidermis or first layer of skin)
Latent TB infection	Also referred to as a TB infection or TB Class 2. Persons with LTBI carry the organism that causes TB but do not have TB disease, are asymptomatic, and noninfectious. Such persons usually have a positive reaction to the TST.
Reactor	A patient who has a positive TST, negative bacteriology studies (if done), and no clinical, bacteriological or radiographic evidence of current disease. Chest radiograph is normal.
Secondary case	A contact who has developed TB disease as a result of transmission from an index case
Source case	A person with infectious TB disease who is responsible for transmitting *M. tuberculosis* to another person or persons. He or she is identified through either a contact or source case investigation and may or may not be the index case.
Source case investigation	Conducted to find the source of transmission when recent transmission is likely. Used to determine who transmitted *M. tuberculosis* to an index patient, infected child, or persons in a cluster of skin test conversions: whether or not this person is still infectious, whether or not the case of TB in this person was reported to the health department, and/or whether or not others were infected by the source case.
Wheal	A smooth slightly raised area on the skin which is white or paler than the surrounding skin and is seen immediately after tuberculin is injected.
Window period	The time span between the date of an initial TST with a negative reaction and the date of the follow-up TST that should take place 10 to 12 weeks after exposure. After the infectious period has ended, a repeat skin test should be administered to each contact who had an initial negative reaction. When the initial TST is given 10 to 12 weeks after the last exposure, a repeat TST is not indicated. **Window period for treatment of latent TB infection**: The practice of providing treatment for LTBI to high-risk contacts during the period between the initial negative TST and the time when the TST is repeated 10 to 12 weeks after exposure. If the contact's TST remains negative when repeated at the end of the window period, treatment for LTBI is usually discontinued.

Appendix D. Contact Information for TB Control Program Staff and Selected Public Health Web Sites

Tuberculosis Control Program Central Office Staff

General Information	(213) 744-6160
Office of the Director	(213) 744-6232
Program Administration	(213) 744-4713
Nursing Administration	(213) 744-6160
Epidemiology Services	(213) 744-6160
Refugee Health Assessment	(213) 744-6191
Health Education	(213) 744-6229
Public Health Investigation	(213) 744-6172
Data Services	(213) 744-6160

Public Health Web Sites

California Tuberculosis Controller's Association (CTCA)	www.ctca.org
Centers for Disease Control and Prevention	www.cdc.gov/nchstp/tb
County of Los Angeles, Department of Health Services	www.lapublichealth.org/tb
Food and Drug Administration (includes MedWatch reporting of adverse drug reactions)	www.fda.gov
Francis J. Curry National Tuberculosis Center	www.nationaltbcenter.edu
State of California Department of Health Services	www.dhs.ca.gov

Appendix D (continued)

Tuberculosis Control Program Health Center APS Information

Assigned SPAs/ Health Centers	Headquarters/Office	Telephone & Fax #'s
SPA 1 – Antelope Valley Health Center	Pacoima Health Center 13300 Van Nuys Blvd., Room 7 Pacoima, CA 91331	Tel # (818) 834-1084 Fax # (818) 834-6574
SPA 2 – Pacoima and Glendale Health Centers	Pacoima Health Center 13300 Van Nuys Blvd., Room 7 Pacoima, CA 91331	Tel # (818) 834-1084 Fax # (818) 834-6574
SPA 3 – Pomona and Monrovia Health Centers	Pomona Health Center 750 South Park Street, Room 116A – Nursing Office Pomona, CA 91766	Tel # (909) 868-0250 Fax # (909) 868-1305
SPA 4 – Central and Satellite Health Centers	Central Health Center 241 N. Figueroa Street, 2nd Floor Room 264 E, Chest Clinic Suite, Los Angeles, CA 90012	Tel # (213) 250-8640 Fax # (213) 250-8764
SPA 4 – Hollywood/Wilshire Health Center	Hollywood/Wilshire Heath Center 5205 Melrose Ave., 2nd Floor Room 2010 Los Angeles, CA 90038	Tel # (323) 769-7830 Fax # (323) 957-4424
SPA 5 – Burke Health Center	Hollywood/Wilshire Heath Center 5205 Melrose Ave., 2nd Floor Room 2010 Los Angeles, CA 90038	Tel # (323) 769-7830 Fax # (323) 957-4424
SPA 6 – South Health Center	South Health Center 1522 East 102nd Street, Room 130, Los Angeles, CA 90002	Tel # (323) 563-4060 Fax # (323) 569- 6438
SPA 7 – Whittier Health Center	Whittier Health Center 7643 S. Painter, Ave. Basement, Room 111 w/Registrar's Office, Whittier, CA 90602	Tel # (562) 464-5304 Fax # (562) 693-5407
SPA 8 – Curtis Tucker and Torrance Health Centers	Curtis Tucker Health Center 123 W. Manchester Blvd. 2nd Floor, Room 223 Inglewood, CA 90301	Tel # (310) 419-6751 Tel # (310) 412-4177

Appendix D (continued)

Tuberculosis Control Program Hospital/Jail Liaison Information

LAC-USC Medical Center	King/Drew Medical Center
1175 N. Cummings Avenue OPD, Room 2P47 & 2P50 Los Angeles, CA 90033 Telephone: (323) 226-7962 Fax: (323) 226-2209	12021 S. Wilmington Avenue Interns & Residents Bldg. Rm 2-101 Los Angeles, CA 90059 Telephone: (310) 668-4420 Fax: (310) 223-0724
Olive View Medical Center	**High Desert Hospital**
14445 Olive View Drive Nursing Education Building Suite 241, Room 18 Sylmar, CA 91342 Telephone: (818) 364-4590 Fax: (818) 364-3565	Medical Trailer 44900 N. 60th Street West Lancaster, CA 93536 Telephone: (661) 945-8576 Fax: (661) 945-8310
Harbor/UCLA Medical Center	**Men's Central Jail**
1000 West Carson Street 5 West, Room 40 Torrance, CA 90509 Telephone: (310) 222-3443 Fax: (310) 328-5680	441 Bauchet Street Los Angeles, CA 90012 Telephone: (213) 974-5027 Fax (213) 687-3204

Appendix D (continued) Quick Reference Directory of Services

If You Need Help With	Please Contact	
• Reporting a new case of T.B. • Approving discharge treatment plans for hospitalized T.B. patients (H&SC 121361)	**Surveillance Staff**	(213) 744-6271 or 744-6160
• Obtaining statistics or demographic data • T.B. skin testing school mandate statistical forms	**Epidemiology Staff**	744-6160
• Refugee and immigrant issues • Class B alien referrals within D.H.S.	**Refugee Staff**	744-6160
• Questions regarding M.D.R./T.B. (multiple drug resistant)	**M.D.R. Staff**	744-6160
• Individuals co-infected with T.B. and H.I.V. • T.B. issues regarding managed care, public-private partnerships, or D.H.S. Personal Health	**HIV/External Health Systems Staff**	744-6160
• Patient management problems related to compliance • Locating a patient • Investigative techniques • T.B. related health laws (within and between jurisdictions)	**Public Health Investigation Staff**	744-6172
• Food, housing, & transportation incentives & enablers	**Incentive & Enabler Project**	744-3237
• Infection control issues • Employee health laws	**Infection Control**	744-6160
• Requesting patient and professional literature • Attending professional training and inservice programs • Requesting community outreach education programs	**Health Education Staff**	744-6229
• Medical consultation	**Medical Director's Office**	744-6232
• General nursing inquiries • Nurse on Phones (nursing consultation)	**Nursing Staff**	744-6151

Appendix E. Standard Forms and Instructions

Number	Name of Form	Use of Form and/or Instructions
	Patient Education Literature and Materials Request form	Complete and fax to Health Education Unit.
	Professional Education and Training Materials Request form	Complete and fax to Health Education Unit.
	Legal Order of Directly Observed Therapy (LODOT)	See Appendix O
	Civil Order of Detention for Tuberculosis	See Appendix O
	Checklist in Support of a Request for a Civil Order of Detention	Complete and fax to TBC Program Detention Coordinator.
	County-wide TB Patient Incentives / Enablers application	Complete and fax to TBC Program Incentive/Enabler Coordinator.
	Request for Potent Antiemetics for TB Patient with Chronic Vomiting	Complete and fax to TBC Program physician.
	M. tuberculosis Epidemiologic Typing Request	Complete and fax to TBC Program physician.
	Confidential Morbidity Report	Fax to TBC Program office.
CDC 75.17	*Report on Alien with Tuberculosis*	Notification of alien referral.
H-20	*California Confidential TB Referral Form*	Reports cases, suspects, and reactors to jurisdictions.
H-261	*TB Preventive Treatment Record*	Preventive therapy flow sheet with prescription order for ERN to follow.
H-285	*Instructions for Sputum Collection*	Instructions for sputum collection. Available in English and Spanish.
H-289	*Tuberculosis Control Contact Investigation Report*	Contact and source case finding roster, exam outcome, and risk assessment.

Appendix E: (continued) Standards Forms and Instructions

Number	Name of Form	Use of Form and/or Instructions
H-290	*TB Patient Registry/ Reporting Form*	Enters suspects/cases into TB registry, confirms cases.
H-304	*Tuberculosis Screening Form*	TB screening and disposition. Enters initiation of preventive therapy in computer system.
H-455	*Public Health Investigation—Request for Legal Intervention*	Initiated by a physician to request Order for Exam or Detention.
H-513	*TB Patient Clinical Summary*	Case/suspect flow sheet, drug orders, and case management. This form will close a case to TB registry.
H-803	*Confidential Tuberculosis Suspect Case Report (Health Facility Admission form)*	Reports all patients hospitalized with suspected or confirmed TB.
H-804	*Tuberculosis Discharge Care Plan (Health Facility Discharge form)*	Approves a discharge of a hospitalized TB patient.
H-1365	*Hospital Tuberculosis Report*	Reports cases or suspects from County hospitals. Used by TB Control nurses only.
H-1397	*Hospital Bacteriology Report*	Reports TB bacteriology, including susceptibility reports from County hospitals.
H-1816	*Tuberculosis Skin Test Report (Positive)*	Given to patients to convey test results. Available in English and Spanish.
H-1832	*TB Patient Discharge Status Card*	Given to patients when treatment is complete. Available in English and Spanish.
H-1833	*Tuberculosis Educational Appointment*	Mailed to patients to notify them that they have an appointment at the public health center to discuss their TB status. Available in English and Spanish.
H-1834	*Tuberculosis Educational Closure*	Given to patients when they break appointments for treatment of LTBI to close case. Available in English and Spanish.
H-2288	*TB Screening History*	Used for PPD reactors to determine TB risks and to assess need for treatment of LTBI. Available in English and Spanish.

Appendix E: (continued) Standards Forms and Instructions

Number	Name of Form	Use of Form and/or Instructions
H-2546	*Tuberculosis Patient Initial History and Physical*	Complete for every case/suspect. Physician and nurse should jointly decide which discipline completes specific sections.
H-2947	*Tuberculosis Skin Test Report (Negative)*	Given to patients to convey test results. Available in English and Spanish.
H-3003	*Special Tuberculosis Drug Request*	Initiated by a physician when requesting special TB drugs. Form is faxed to a TBC Program physician.
	Confidential Laboratory Report	Fax to TBC Program office.

Los Angeles County Department of Health Services
Tuberculosis Control Program

PATIENT EDUCATION LITERATURE AND MATERIALS REQUEST FORM

(Please indicate the number of items you are requesting on the lines provided)

Please Mail or Fax To:
Tuberculosis Control Program
Health Education Unit
2615 South Grand Ave. Room 507
Los Angeles, Ca. 90007
Phone: (213) 744 - 6229 Fax: (213) 749 - 0926

Date of Request_____

From: Name_____ Title_____

Agency/Address_____

_____

Phone No._____ Fax No._____

GENERAL TB INFORMATION

Tuberculosis Fact Sheets (Please indicate number of sheets needed) ** Available in English and Spanish * English Only

** TB Facts - You Can Prevent TB _____ ** TB Facts - The TB Skin Test _____

** TB Facts - Exposure to TB _____

** TB Facts - TB Can Be Cured _____ * TB Facts - TB and HIV (The AIDS Virus) _____

Tuberculosis, Get The Facts! (CDC Pamphlet, not dated)

English_____ Spanish_____ Chinese_____ Korean_____

Tagalog_____ Japanese_____ Russian_____ Vietnamese_____

What You Should Know About Tuberculosis (AAPCHO Pamphlet, Nov. 1995)

English_____ Chinese_____ Korean_____ Vietnamese_____ Illocano_____ Tagalog_____

Tuberculosis, It Can Happen To You (San Francisco Dept. of Public Health/American Lung Association Comic Book, Sept. 1991)

English_____ Spanish_____ Chinese_____ Korean_____

Stop TB (CDC Tear-Off Sheets, 1994) English_____ Spanish_____ (Please indicate # of sheets needed)

TB Infection and Disease (Flipcharts - 8.5" x 11") English_____ Spanish_____ Chinese_____ Vietnamese_____ Korean_____

Questions and Answers About Tuberculosis (CDC Booklet, 1994) English_____

TREATMENT OF TB AND LATENT TB INFECTION

Preventive Treatment Record (LAC/DHS Booklet, June 1985)

English_____ Spanish_____ Vietnamese_____ Korean_____

Tuberculosis Preventive Therapy (LAC/DHS Pamphlet, Feb. 1991)

English_____ Spanish_____ Vietnamese_____ Cambodian_____

Russian_____ Tagalog_____ Chinese_____ Korean_____

Tuberculosis Treatment Record (LAC/DHS Booklet, March 1981)

English_____ Spanish_____ Vietnamese_____ Korean_____

Tuberculosis Class 3 and 5 (LAC/DHS Pamphlet, not dated)

English_____ Spanish_____ Vietnamese_____ Cambodian_____

Korean_____ Chinese_____ Russian_____ Tagalog_____

TB AND HIGH RISK AREAS

Tuberculosis: The Connection Between TB and HIV (CDC Pamphlet, not dated)

English_____ Spanish_____ Vietnamese_____

Chinese_____ Korean_____ Russian_____

POSTERS

Think TB! (Lists the symptoms of TB) English_____ Spanish_____

Cover Your Cough (8.5" X 11" mini-poster) English_____ Spanish_____

Stop TB (Uses pictures and text to describe the pathogenesis & transmission of TB English_____

VIDEOS - Patient and Community Education

To request any of the following films, please contact the TB Control Health Education Unit. We will ask you to provide a blank video cassette and will duplicate the film(s) of your choice onto the tape(s) that you provide. One or more films per tape may be copied at your request.

You Can Prevent TB English_____ Spanish_____ Mandarin_____ Russian_____

You Can Beat TB English_____ Spanish_____ Cantonese_____

Why Me? English_____ Spanish_____

TB Guide English_____ Spanish_____

TB Strikes Again English_____ Spanish_____

TB and HIV - The Connection English_____ Spanish_____

The Facts About TB English_____ Spanish_____ Cantonese_____

Tuberculosis: If You Breathe the Air English_____

What You Don't Know About TB Can Kill You English_____

TB Or Not TB English_____

TB - A Reality Check English_____

For Office Use Only: **Date Rec'd**_____**By**_____**Date Sent**_____ **By**_____ **Hand Carried**_____

U.S. Mail_____**Co. Mail**_____ **Pick-Up**_____

Los Angeles County Department of Health Services
Tuberculosis Control Program

PROFESSIONAL EDUCATION AND TRAINING MATERIALS REQUEST FORM

(Please indicate the number of items you are requesting on the lines provided)

Please Mail or Fax To:
Tuberculosis Control Program
Health Education Unit
2615 South Grand Ave. Room 507
Los Angeles, Ca. 90007
Phone: (213) 744 - 6229 Fax: (213) 749 - 0926

Date of Request_____

From: Name_____ Title_____

Agency/Address_____

_____

Phone No._____ Fax No._____

GENERAL TB INFORMATION

Core Curriculum on Tuberculosis (CDC Booklet, Fourth Edition 2000) _____

L.A. County TB Statistical Fact Sheet (Updated Annually) _____

TB Facts for Health Care Workers (CDC Booklet, revised 1997) _____

TB Control Laws - United States 1993 (MMWR, November 1993) _____

Diagnostic Standards and Classification of TB in Adults and Children (American Thoracic Society, 2000) _____

TB Elimination Revisited: Obstacles, Opportunities, and a Renewed commitment (MMWR, August 1999) _____

TARGETED TESTING AND TREATMENT OF TB DISEASE AND LATENT TB INFECTION (LTBI)

Targeted Skin Testing and Treatment of Latent TB Infection in Adults and Children
(L.A. County TB Control Guidelines, February 2001) _____

TB Test Requirements (L.A. County TB Control Guidelines, September 1996) _____

Tuberculin Skin Test Administration Reading and Interpretation of Results
(L.A. County TB Control Guidelines, November 1997) _____

Guidelines for TB Screening and Management of Residents Admitted to L.A. County
Long-Term Care Facilities (L.A. County TB Control Guidelines, October 1996) _____

Improving Patient Adherence to Tuberculosis Treatment (CDC Booklet, 1994, Revised) _____

Treatment of Tuberculosis and Tuberculosis Infection in Adults and Children (CDC Article Reprint, 1994) _____

Tuberculosis: Six Case Studies (Self-Assessment Exercises - Charles P. Felton National TB Center) _____

Treating Tuberculosis - A Clinical Guide (CDC Publication, 1994) **(OUT OF PRINT)** _____

Treatment of Tuberculosis (L.A. County TB Control Guidelines, 2001) _____

Questions and Answers On the BCG Vaccination for the Clinician _____

Questions and Answers On the BCG Vaccination for Patients _____

TB IN HIGH RISK AREAS AND POPULATIONS

TB Among Foreign Born Persons Entering the U.S. (CDC Booklet, Dec. 1990) _____

Prevention and Control of Tuberculosis in Facilities Providing Long Term Care to the Elderly. Recommendations of the Advisory Committee for Elimination of Tuberculosis (CDC Booklet, July 1990) _____

Prevention and Treatment of TB Among Patients Infected with HIV: Principles of Therapy and Revised Recommendations (MMWR, October 1998) _____

TB in Homeless Shelters - Reducing the Risk Through Ventilation, Filters, and UV Lighting (Francis J. Curry National TB Center Publication, 2000) _____

Controlling TB in Correctional Facilities (CDC Booklet, February 1999) _____

Guidelines for Preventing the Transmission of TB in Health-Care Facilities (CDC Booklet, October 1994) _____

INFECTION CONTROL

Los Angeles County TB Control Program TB Exposure Control Plan for Outpatient Facilities (Adapted from State and Federal OSHA Guidelines, September 1995) _____

Interim Tuberculosis Control Enforcement Guidelines (California Code of Regulations/Division of Occupational Safety & Health, March 1997) _____

OTHER HEALTH EDUCATION MATERIALS

Mantoux Skin Test Reading (wall chart) _____

Mantoux Rulers (flexible plastic) _____

Preventive Therapy Completion Cards (50 cards per pack) _____

PROFESSIONAL TRAINING VIDEOS

To request any of the following films, please contact the TB Control Health Education Unit. We will ask you to provide a blank video cassette and will duplicate the film(s) of your choice onto the tape(s) that you provide. One or more films per tape may be copied, at your request.

When a Co-Worker has TB _____

TB - What the Healthcare Worker Should Know _____

TB Prevention and Practices for Healthcare Workers _____

Think TB (for physicians) _____

Tuberculosis: A Preventable Epidemic _____

Tuberculosis Skin Testing - Mantoux Technique _____

The People's Plague _____

How You Can Assess Engineering Controls For TB in Your Healthcare Facility _____

FOR OFFICE USE ONLY

Date Rec'd_____ By_____ Date Sent_____ By_____

Hand Carried_____ U.S. Mail_____ Co. Mail_____ Pick Up_____

COUNTY OF LOS ANGELES
DEPARTMENT OF HEALTH SERVICES
TUBERCULOSIS CONTROL PROGRAM
2615 S. Grand Avenue, Room 507
Los Angeles, CA 90007
213-744-6160 Telephone
213-749-0926 FAX

LEGAL ORDER OF DIRECTLY OBSERVED THERAPY

Date Issued: _____

PURSUANT TO THE AUTHORITY IN THE CALIFORNIA HEALTH AND SAFETY CODE SECTION 121365(c), THE HEALTH OFFICER OF THE COUNTY OF LOS ANGELES HEREBY ISSUES A LEGAL ORDER OF DIRECTLY OBSERVED THERAPY.

THIS ORDER SHALL REMAIN IN EFFECT UNTIL THE COMPLETION OF THERAPY ON _____.
Date

The Health Officer has determined there is reasonable clinical evidence to believe that you have active tuberculosis. You are hereby ordered to follow a course of directly observed therapy on the following schedule and under the following terms and conditions:

_____

_____

The assessment of the circumstances regarding the necessity for this Legal Order of Directly Observed Therapy, including less restrictive alternatives that were attempted and unsuccessful or considered and rejected, are as follows:

_____

_____

Failure to comply with this order may subject its recipient to further orders of the Health Officer including a Legal Order of Civil Detention.

ORDER ISSUED TO:

Name of Person: _____ **Date of Birth:** _____

Address: _____

TB Clinician Signature: _____ **Date:** _____

Translator/Witness Signature: _____ **Date:** _____

Health Officer Signature: _____ **Date:** _____

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
TUBERCULOSIS CONTROL PROGRAM

CIVIL ORDER OF DETENTION FOR TUBERCULOSIS

The local health officer has determined that you, [Click and enter name], have tuberculosis, are reasonably suspected of having active tuberculosis, or have been reported as having active tuberculosis without having completed treatment and are noncompliant or are likely to be noncompliant with examination, treatment and/or infection control precautions for active tuberculosis disease.

Therefore, in order to protect the public health, the local health officer hereby orders that you be detained at: [Click and enter address of detention facility] and that you not leave this place of detention without written permission of the local health officer.

This order is made pursuant to California Health and Safety Code, Sections 120175 and 121365 (a), (d), or (e). This order shall be in effect for at least sixty days unless modified by the local health officer or court order and may be further extended pursuant to court order. The purpose of your detention is as follows: To separate you from others so that you do not transmit tuberculosis and to begin and or complete an appropriate prescribed course of medication for tuberculosis disease.

The assessment of the circumstances regarding your detention, including less restrictive alternatives which were attempted or considered and rejected, is as follows:
[Click and enter individualized assessment]

You have the right to request release by calling [Click and enter Name] at: (213) 744-6160. If you request release, this order cannot continue for more than five business days after the day you request release without a court order authorizing your detention. Whether or not you request release, the local health officer must obtain a court order authorizing continued detention within sixty days following the first day of your detention and thereafter must seek court review of the detention every ninety days. You have the right to arrange to be represented by counsel or to have counsel provided. If you choose to have counsel provided, the counsel will be notified that you have requested legal representation and counsel will contact you at your place of detention.

This Order is effective immediately and shall remain in effect until your treatment for tuberculosis is complete or until the local Health Officer or his designee determines that there is a reasonable likelihood that you will be able to participate in and complete an appropriate course of medication for active tuberculosis disease without detention.

This order served in person by:

Signature: _____
Title: Public Health Investigator
Date: _____

LOCAL HEALTH OFFICER,
COUNTY OF LOS ANGELES
Signature: _____
Title: [Click and enter Title]
Date: _____

Translator/Witness Signature: _____
Printed Name: _____
Date: _____

Payer Source: Unknown

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
TUBERCULOSIS CONTROL PROGRAM

ADVISEMENT OF RIGHTS

You, [Click and enter Name], have been detained pursuant to an order of detention for tuberculosis in accordance with Health and Safety Code Sections 120175 and 121365(a),(d) and/or (e). You are hereby advised of the following rights:

You have the right to request release from detention by calling the person designated on the order of detention at the number listed on the order. If you request release, the detention order shall not continue for more than five business days after the day you request release without a court order authorizing your detention.

You have the right to arrange to be advised and represented by counsel or to have counsel provided. If you choose to have counsel provided, the counsel will be notified that you have requested legal representation.

You may supply the addresses or telephone numbers of not more than two individuals to receive notification of your detention, and the local health officer shall, at your request, provide notice within the limits of reasonable diligence to those people that you are being detained.

WAIVER OF RIGHTS

I acknowledge that I have received the above referenced Civil Order of Detention for Tuberculosis and accompanying Advisement/Waiver of Rights. At this time I choose to do the following (place initials in space provided):

_____ Request release from the order of detention for tuberculosis and I request that counsel be provided.

_____ I do not request release from the order of detention for tuberculosis at this time. I have been advised to contact the person listed on the order of detention to request release from detention at any time during the duration of the detention order.

_____ I do not request that counsel be provided at this time. I understand that I may arrange to be advised or represented by counsel or to have counsel provided at anytime during the duration of the order of detention for tuberculosis.

Patient Signature: _____ Translator/Witness: _____

Printed Name: _____

Date: _____ Date: _____

ADDRESSES OF DETENTION SITES

COUNTY FACILITIES:

High Desert Hospital, 44900 N. 60th Street West, Lancaster, CA 93536

Martin Luther King/Drew Medical Center, 12021 S. Wilmington Avenue, Los Angeles, CA 90059

Harbor/UCLA Medical Center, 1000 W. Carson Street, Torrance, CA 90509

Olive View-UCLA Medical Center, 14445 Olive View Drive, Sylmar, CA 91342

LAC+USC Medical Center, 1937 Hospital Place, Los Angeles, CA 90033

Antelope Valley Rehabilitation Center, 30500 N. Arrastre Canyon Road, Acton, CA 93510

GOVERNMENT FACILITES:

West Los Angeles Veteran's Administration Medical Center, 11031 Wilshire Boulevard, West Los Angeles, CA 90073

CHECKLIST IN SUPPORT OF A REQUEST FOR A CIVIL ORDER OF DETENTION

Requesting Facility, Clinic, or Program:_____ Date: ___/___/_____
Name of Physician Requesting Detention:_____ Phone:_____
Signature of Physician Requesting Detention:_____
This form filled out by:_____ Date: _____
Information On This Form Obtained From the following Source: _____

PATIENT BEHAVIORS WHICH SUPPORT A REQUEST FOR DETENTION

Check the appropriate box after the patient behavior. There must be supporting documentation for all boxes checked below in the patient's medical record.

If civil detention is requested **prior to hospital discharge**, the patient:

Refused hospital respiratory isolation	Yes	No
Actually left or threatened to leave the hospital against medical advice	Yes	No
Refused to take anti-tuberculosis medication	Yes	No
Refused to mask or cover cough when instructed to do so	Yes	No
Refused to submit sputum specimens	Yes	No

If civil detention is requested for a patient **under public health center supervision**, the patient:

Missed clinic/physician appointments If yes, state frequency and duration _____	Yes	No
Missed doses of anti-tuberculosis medication If yes, state frequency and duration _____	Yes	No
Refused to take anti-tuberculosis medication	Yes	No
Refused to mask or cover cough when instructed to do so	Yes	No
Refused to submit sputum specimens	Yes	No
Refused to restrict self from work or worked against medical advice	Yes	No
Moved without notifying the County health department	Yes	No
Violated Order of Examination ÿ N/A If yes, list date(s) of violation: ___/___/_____ ___/___/_____	Yes	No
Violated "Containment Agreement" ÿ N/A If yes, date of Agreement ___/___/_____ Date of violation ___/___/_____	Yes	No

Nature of violation of Containment Agreement:_____

_____

Refused hospitalization for isolation and/or treatment ÿ N/A	Yes	No

INTERVENTIONS ATTEMPTED TO PROMOTE PATIENT ADHERENCE WITH PRESCRIBED THERAPY

Check all less restrictive interventions that apply. There must be supporting documentation for all boxes checked below in the patient's medical record.

ÿ **Educated regarding TB diagnosis & treatment**

ÿ **Placed on DOT** **If not, why? _____**
If so, frequency: ÿ Daily ÿ BIW ÿ TIW

ÿ **Offered Enablers (bus tokens, transportation to/from clinic)**
If not, why? ÿ Has Transportation Other, specify_____
If so, ÿ Accepted ÿ Refused
If refused, why? _____

ÿ **Offered Incentives (food, bus pass, clothing)** Specify incentives offered_____
If not, why? ÿ No identified need
If so, ÿ Accepted ÿ Refused
If refused, why? _____

ÿ **Offered SRO Housing**
If not, why? ÿ Not Homeless Other, specify_____
If so, ÿ Accepted ÿ Refused
If refused, why? _____

ÿ **Offered social or mental health services**
If not, why? ÿ No identified need
If so, ÿ Accepted ÿ Refused
If refused, why? _____

ÿ **Offered placement in substance abuse rehabilitation**
If not, why? ÿ No identified need
If so, ÿ Accepted ÿ Refused
If refused, why? _____

ÿ **Served an Order of Examination**

ÿ **Placed on "Containment Agreement" if MDR-TB**

If not, why? ÿ **N/A** ÿ **Refused** **Other, specify_____**

Provide any additional information below to justify the request for a civil order of detention:

LOS ANGELES COUNTY TB CONTROL PROGRAM
COUNTY-WIDE TUBERCULOSIS PATIENT
INCENTIVES/ENABLERS APPLICATION

DISTRICT HEALTH CENTER: **DATE REQUESTED:____/____/____**

CONTACT PERSON:_____ TITLE:_____
TELEPHONE: ( )_____ **FAX: ( )_____**

Check which incentives/enablers are being requested: **Housing ~ Food ~ Tokens ~**
McDonald=s Coupons ~ MTA Pass ~ Antelope Valley Rehabilitation Centers - Acton ~

Housing Site Requested: **Anticipated Entry Date: ____/____/____**

PATIENT=S NAME: **PF#:**

AKA:_____ **DOB:**

CLASS: _____ PTB? YES ~ NO ~ EXTRAPULMONARY TB ? YES ~ NO ~
IS PATIENT CURRENTLY ON DOT? YES ~ NO ~

BACTERIOLOGY HISTORY:

DATE ____/____/____	SMEAR:	POS ~	NEG ~	CULTURE:	POS ~	NEG ~	PEND ~
DATE ____/____/____	SMEAR:	POS ~	NEG ~	CULTURE:	POS ~	NEG ~	PEND ~
DATE ____/____/____	SMEAR:	POS ~	NEG ~	CULTURE:	POS ~	NEG ~	PEND ~

PATIENT HISTORY

INFECTIOUS?	YES ~ NO ~	HOMELESS ?	YES ~ NO ~
SUBSTANCE ABUSE?	YES ~ NO ~	AMBULATORY?	YES ~ NO ~

OTHER MEDICAL CONDITIONS:_____

TB MEDS START DATE: _____/_____/_____

ANTICIPATED TREATMENT COMPLETION DATE:_____/_____/_____

CURRENT MEDS

~ INH _____ mg/day
~ RIF _____ mg/day
~ EMB _____ mg/day
~ PZA _____ mg/day
~ Rifabutin _____ mg/day
~ Rifamate _____ cap/day
~ other:_____

COMPLIANCE HISTORY:

DISTRICT TB CLINICIAN SIGNATURE:

Please complete all of the requested information above this box and fax this form to the attention of Houda Assaly, I/E Coordinator. FAX #: (213) 749-0926

TB CONTROL MD CONSULTATION (see attached ~):

DATE _____/_____/_____ ~ APPROVED ~ DENIED REASON:

INCENTIVE/ENABLER PROJECT COORDINATOR SIGNATURE:

REQUEST FOR POTENT ANTIEMETICS FOR TB PATIENT WITH CHRONIC VOMITING

DATE: _____

PATIENT'S NAME: _____

PF#: _____

D.O.B.:_____

CLINIC: _____

DRUG REQUESTED: _____

SIG (DIRECTION):_____

DISPENSE:_____

REASON FOR REQUEST:

○ SEVERE NAUSEA & VOMITING DUE TO SECOND-LINE TB MEDS (LIST OFFENDING MEDS) _____
_____

○ SEVERE NAUSEA & VOMITING DUE TO FIRST-LINE TB MEDS (LIST OFFENDING MEDS) _____
_____

○ SEVERE NAUSEA & VOMITING DUE TO UNDERLYING DISEASE (DESCRIBE) _____

○ OTHER (DESCRIBE) _____

PLEASE LIST ANTIEMETICS USED THAT WERE INEFFECTIVE: _____

_____

_____

_____

○ APPROVED FOR USE IN THE PATIENT FOR _____ (# OF PILLS OR LENGTH OF TIME) BY _____
TITLE _____ DATE _____

○ REVIEWED BUT NOT APPROVED BY
TITLE _____ DATE _____

CONFIDENTIAL – CHART COPY

Date: June 10, 1998

To: All District Health Officers
All Chest Clinicians

From: Paul T. Davidson, M.D.

Re: **PROCEDURE FOR REQUESTING POTENT ANTIEMETICS**

As you know, many of the second-line TB medications cause significant toxicity including severe nausea and vomiting. The nausea and vomiting suffered by these patients are comparable (and in some cases worse) than the GI symptoms experienced by cancer patients on chemotherapy. Chronic vomiting after ingestion of second-line TB drugs can have multiple adverse effects including suboptimal or even ineffective Cmax levels of the oral second-line TB drugs, decreased chance of curing MDR-TB, and complications related to chronic vomiting including aspiration pneumonitis and esophagitis.

It is recommended that patients suffering from severe nausea and vomiting due to TB drugs be offered oral or parenteral forms of antiemetics (e.g. Benadryl, Compazine, Tigan, Vistaril, and Reglan). However, if these antiemetics are used properly but are ineffective, the following procedure is to be used to request a more potent (e.g. granisetron).

1. The TB clinician or his/her designee is to call (213) 744-6180 to give patient information required to fill the attached form. Voice mail can record the calls if no one in the MDR-TB Unit is available to answer.

2. MDR-TB nursing will complete the form, and will fax it to the requesting TB clinic within one working day.

3. The TB clinic can then send the completed antiemetic request form and prescription to the pharmacy.

Please share this information with nursing. We hope this new process will be of help to the patients who suffer from intractable chronic nausea and vomiting due to TB medications.

Cc: Shirley Fannin, M.D.
James Haughton, M.D.
Kathleen Hunt, N.M.
Janet Aiso, Pharm.D.

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
DISEASE CONTROL PROGRAMS/PUBLIC HEALTH LABORATORY
MYCOBACTERIOLOGY/MOLECULAR EPIDEMIOLOGY

***MYCOBACTERIUM TUBERCULOSIS* EPIDEMIOLOGIC TYPING REQUEST**

REQUESTED BY: _____ DATE: _____

URGENT (circle one): Yes No
REASON FOR REQUEST (circle one): Cluster Suspected cross contamination Labeling error

Please describe fully. Attach additional sheet if necessary. Specify name of index case or suspected common source: _____

1. Patient Name / PF#	D.O.B.	Submitter	Index case?	Specimen Source
			Yes or No	
Susceptibility Results	Accession #	ID of Organism	HPLC / DNA Probe / Biochemicals?	Date of Specimen Collection

1. Patient Name / PF#	D.O.B.	Submitter	Index case?	Specimen Source
			Yes or No	
Susceptibility Results	Accession #	ID of Organism	HPLC / DNA Probe / Biochemicals?	Date of Specimen Collection

(FAX TO TB CONTROL AND SEND APPROVED FORM TO PUBLIC HEALTH LAB)

TB CONTROL PROGRAM-FAX# (213) 749-0926

G This request was reviewed and approved by _____
(SIGNATURE OF TB CONTROL PROGRAM)

_____ _____
(TITLE) (DATE)

G This request was not approved because: _____

Reviewed but not approved by _____
(SIGNATURE OF TB CONTROL PROGRAM)

_____ _____
(TITLE) (DATE)

PUBLIC HEALTH LAB, MOLECULAR EPIDEMIOLOGY SECTION-FAX# (213) 481-2375

Received and reviewed by: _____ on _____
(LABORATORIAN) (DATE)

***MYCOBACTERIUM TUBERCULOSIS* EPIDEMIOLOGIC TYPING REQUEST**

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH PROGRAMS AND SERVICES

Date: March 22, 1999

To: James Haughton, M.D., M.P.H.
Shirley Fannin, M.D.
Ben Mirman, M.D.
All District Health Officers
All Nurse Managers

From: Paul Davidson, M.D.
Director, TB Control Program

Sydney Harvey, Ph.D.
Director, Public Health Lab

Re: ***Mycobacterium tuberculosis*** **Epidemiologic Typing Request**

This memorandum serves to clarify the process of requesting typing (e.g. RFLP) of isolates of *M. tuberculosis* complex. Specific instructions for use of the attached ***Mycobacterium tuberculosis*** **Epidemiologic Typing Request** form follow.

1. The ordering physician (or his/her designee) is to fill out the top portion of the form. The date of the request, urgency, reason for the request, and patient-related information must be specified.

2. The completed form is to be faxed to TB Control Program for medical review.

3. If the request is approved, the TB Control Program reviewer will sign the form, and fax it back to the requestor. The requestor is then responsible for retaining a copy of the approved form, and faxing a copy to the Public Health Lab at fax# (213) 481-2375.

4. Public Health Lab will retain a copy of the approved form, and will later send the test results to the requestor and the TB Control Program.

5. If the request is disapproved, TB Control Program will specify the reason for disapproval on the form, and will fax it back to the requestor.

Please call if you have any questions.

Los Angeles County
Phone: (213)744-6160
Fax: (213)749-0926

Confidential Morbidity Report of Tuberculosis Suspects & Cases

Department of Public Health
Rev: 7/06

Under California law, all TB suspects and cases must be reported within ***one*** working day

Patient's Last Name	First	Middle	Date of Birth / /	Age	Sex	Patient's SS#

Patient's Address	City	State	Zip	County	Phone ( ) -

Occupation	Country of Birth	Date Arrived in U.S. / /	Medical Record Number

(mark one) **Race:** ☐ White ☐ Black ☐ Asian spec. _____ ☐ Pacific Islander spec._____ ☐ Alaska Native ☐ American Indian

(mark one) **Ethnicity:** ☐ Hispanic ☐ Non-Hispanic

Previous TB Skin Test:
Date: ___/___/___ _____ mm of induration
Current TB Skin Test:
Date: ___/___/___ _____ mm of induration

Chest X-ray date: ___/___/___
☐ Normal ☐ Cavitary ☐ Non-Cavitary
Impression: _____
_____

☐ **Check here if Reporting a Skin Test Reactor age 3 and under *only***

Complete for TB Suspect/Case Only

Active Disease
☐ **TB Suspect**
☐ **TB Case**

Site of Disease
☐ **Pulmonary TB**
☐ **Extra-pulmonary TB** **Specify Site**: _____

Cough and/or Sputum production	Date of Onset	Date of Diagnosis	Date of Death
☐ Yes ☐ No	/ /	/ /	/ /

Bacteriology ☐ **Not Done**

Date Collected	Specimen Type	Smear AFB	Culture MTB

Treatment ☐ **Not Started**

Drug	Dose	Start Date
INH		
Rifampin		
EMB		
PZA		
Rifamate®		
Rifater®		
Other		

Lab Name:_____ **Phone: ( ) -**

Remarks:

For the TB Control Use
☐ New or ☐ Open
DP#:_____
☐ Close date _____
☐ Conf. date _____
☐ TB or ☐ PMD
☐ Faxed date _____
☐ Faxed date _____
cc: _____

Reporting Health Care Provider	Telephone Number ( )	Fax Number ( )
Reporting Health Care Facility Address	Submitted By	Date Submitted

County of Los Angeles ☆ Department of Public Health

Tuberculosis Control Program

2615 S. Grand Ave., Room 507 Los Angeles, CA 90007

WHY DO YOU REPORT?

Because it is required! Reporting of all patients with ***confirmed*** or ***suspect*** Tuberculosis is mandated by State Health and Safety Codes (HSC) Section 121362 and Title 17, Chapter 4, Section 2500 and must be done within ***one working day of diagnosis.*** HSC Section 121361 also mandates that prior to discharge, all tuberculosis suspects and cases in hospitals and prisons have an individualized, written discharge plan approved by the Local Health Officer (i.e. TB Controller).

WHO MUST REPORT?

1. All health care providers (including administrators of health care facilities and clinics) in attendance of a patient suspected to have or confirmed with active tuberculosis must report within ***one working day*** from the time of identification.
2. The director of any clinical lab or designee must report laboratory evidence suggestive of tuberculosis to the Health Department on the same day that the physician who submitted the specimen is notified (California Code of Regulations Section 2505).

WHEN DO YOU REPORT?

1. When the following conditions are present:
   - ☆ signs and symptoms of tuberculosis are present, and /or
   - ☆ the patient has an abnormal chest x-ray consistent with tuberculosis, or
   - ☆ the patient is placed on two or more anti-TB drugs
2. When bacteriology smears or cultures are positive for acid fast bacilli (AFB).
3. When the patient has a positive culture for ***M.tuberculosis*** **complex** ***(i.e., M.tuberculosis, M.bovis, M.canettii, M.africanum, M.microti)***
4. When a pathology report is consistent with tuberculosis.
5. When a patient **age *3 years*** or younger has a positive Tuberculin skin test and normal CXR.

DELAY OR FAILURE TO REPORT:

Delay or failure to report communicable diseases has contributed to serious consequences in the past. Under the ***California Code of Regulations,*** Title 16 (section 1364.10), failure to report a communicable disease is a violation of State regulations subject to a citation(s) and monetary fine(s).

The Medical Board of California determined failure to report in a timely manner a citable offense under ***California Business and Professions Code*** (Section 2234), "Unprofessional Conduct."

HOW DO YOU REPORT?

The Confidential Morbidity Report (CMR) form on the other side is to be completed in its entirety and submitted to Tuberculosis Control:

1. ***BY FAX:*** ***(213) 749-0926***

   or

2. ***BY PHONE:*** ***(213) 744-6160***

After hours, leave your name, phone or pager #, patient name, DOB and medical record number on voicemail.

Rev: 7/06

ALIEN (Alien #, Name and U.S. Address): **A54-554-554** **IMMIGRANT**
DOE, JOHN
123 ANYSTREET
ANYTOWN, NY 10101
SEX: [X] M [ ] F DATE OF BIRTH (mo., day, yr.) 05/15/1955

PHYSICIAN OR HEALTH FACILITY *(Name and Address from Waiver Application)*
DR. MOORE
789 ANYSTREET
BROOKLYN, NY 10102

ALIEN'S SPONSOR *(Name, Address, Phone from Waiver Application)*
MICHAEL SMITH
456 ANYSTREET
NEW YORK, NY 10111 (212) 123-4567

REPORT ON ALIEN WITH TUBERCULOSIS WAIVER
PHYSICIAN:
You agreed to provide medical care to this alien and to submit a report of your initial evaluation on this form. The alien has arrived in the United States and should report directly to you.

Please obtain a direct smear and X-ray. Check appropriate boxes below and forward this form to the Local Health Officer (who has jurisdiction in the area of the alien's residence) within 30 days of the alien's reporting to you.*

If the alien does not report by 11/07/94 please check here [ ] and forward this form to the local Health Officer.* Retain for your records the accompanying report of examination performed abroad (Form OF-157).

** Military will send direct to the Centers for Disease Control and Prevention.*

YOUR INITIAL EVALUATION:

A. Direct Smear (in U.S.)
[ ] Positive
[ ] Negative
[ ] Not done

B. X-ray (in U.S.)
[ ] Normal
[ ] Abnormal
[ ] Not done

C. X-ray (abroad)
[ ] Normal
[ ] Abnormal
[ ] Not done
[ ] Unavailable

D. Presumptive Diagnosis
[ ] Pulmonary TB - Active
[ ] Pulmonary TB - Not Active
[ ] Pulmonary TB - Activity Undetermined
[ ] Extrapulmonary TB
[ ] Non-TB Abnormality
[ ] No Abnormality

E. If referred elsewhere for follow-up or treatment, give name and address of physician or facility.

Signature of Physician

Date of Evaluation:

This form is not intended to substitute for normal procedures for reporting tuberculosis to the Health Department	PHYSICIAN	FORWARD — > TO	LOCAL HEALTH OFFICER (sign) DATE	FORWARD — > TO	STATE HEALTH OFFICER	FORWARD — > TO	Division of Quarantine, Data Mgr (E03) Centers for Disease Control and Prevention Atlanta, Georgia 30333

CDC 75.18 (Rev. 3/94) **CLASS A** **PHYSICIAN or HEALTH FACILITY COPY**

ALIEN (Alien #, Name and U.S. Address): **A54-554-554** **IMMIGRANT**
DOE, JOHN
123 ANYSTREET
ANYTOWN, NY 10101
SEX: [X] M [ ] F DATE OF BIRTH (mo., day, yr.) 05/15/1955
PHYSICIAN OR HEALTH FACILITY *(Name and Address from Waiver Application)*
DR. MOORE
789 ANYSTREET
BROOKLYN, NY 10102
ALIEN'S SPONSOR *(Name, Address, Phone from Waiver Application)*
MICHAEL SMITH
456 ANYSTREET
NEW YORK, NY 10111 (212) 123-4567

C AS A CONDITION OF YOUR ENTRY INTO THE UNITED STATES WITH AN APPROVED WAIVER OF EXCLUDABILITY, YOU AGREED TO GO DIRECTLY TO THE PHYSICIAN OR FACILITY SPECIFIED ON THIS FORM FOR SUCH EXAMINATION AND TREATMENT AS IS PRESCRIBED.

C PRESENT THIS FORM AND YOUR X-RAYS UPON YOUR FIRST VISIT.

C YOU ARE REQUESTED TO REMAIN UNDER MEDICAL SUPERVISION UNTIL DISCHARGED

Signature of Quarantine Inspector	**Date**

CDC 75.18 (Rev. 3/94) **CLASS A** **TRAVELER'S COPY**

ALIEN (Alien #, Name and U.S. Address): **A54-554-554** **IMMIGRANT**

DOE, JOHN
456 ANYSTREET
NEW YORK, NY 10111
(212) 123-4567

SEX: [X] M [ ] F DATE OF BIRTH (mo., day, yr.) 05/15/1955

[ ] CLASS B-1 - Tuberculosis, clinically active, not infectious

[X] CLASS B-2 - Tuberculosis, not clinically active, not infectious

NOTICE OF ARRIVAL OF ALIEN WITH TUBERCULOSIS

STATE HEALTH OFFICER:
Please Forward the Evaluation Copy and Accompanying Report of Medical Examination Performed Abroad (OF-157), to the Appropriate Local Health Department.

Upon arrival in the United States this alien was requested to report to the Local Health Department at his/her destination. X-ray taken abroad showed findings consistent with tuberculosis. The person may not have received antituberculosis chemotherapy or chemoprophylaxis; therefore, the Health Department may wish to initiate preventive treatment. The Local Health Department is requested to submit a report of initial evaluation by 11/07/94 through you to:

Division of Quarantine, Data Mgr (E03)
Centers for Disease Control and Prevention (CDC)
Atlanta, Georgia 30333

** Military will send direct to the Centers for Disease Control and Prevention.*

This space is provided for you to record the Local Health Department's report, if desired, before forwarding the report to the following address:

CDC 75.17 (Rev. 3/94)

CLASS B

STATE HEALTH FACILITY COPY

ALIEN (Alien #, Name and U.S. Address): **A54-554-554** **IMMIGRANT**

DOE, JOHN
456 ANYSTREET
NEW YORK, NY 10111
(212) 123-4567

SEX: [X] M [ ] F DATE OF BIRTH (mo., day, yr.) 05/15/1955

[ ] CLASS B-1 - Tuberculosis, clinically active, not infectious

[X] CLASS B-2 - Tuberculosis, not clinically active, not infectious

REPORT ON ALIEN WITH TUBERCULOSIS

LOCAL HEALTH OFFICER:
This person recently entered the United States and is referred to you because the X-ray shows findings consistent with tuberculosis, as indicated in the accompanying report of medical examination performed abroad. This person may not have received chemotherapy or chemoprophylaxis and is referred to you because you may wish to initiate preventive treatment. Your initial evaluation would be appreciated. Please check the appropriate boxes below and return this form to the State Health Officer.*

If the alien does not report by 11/07/94 please check here [ ] and forward this form to the State Health Officer.* Retain for your records the accompanying report of examination performed abroad (Form OF-157).

** Military will send direct to the Centers for Disease Control and Prevention.*

YOUR INITIAL EVALUATION:

A. Direct Smear (in U.S.)
[ ] Positive
[ ] Negative
[ ] Not done

B. X-ray (in U.S.)
[ ] Normal
[ ] Abnormal
[ ] Not done

C. X-ray (abroad)
[ ] Normal
[ ] Abnormal
[ ] Not done
[ ] Unavailable

D. Presumptive Diagnosis
[ ] Pulmonary TB - Active
[ ] Pulmonary TB - Not Active
[ ] Pulmonary TB - Activity Undetermined
[ ] Extrapulmonary TB
[ ] Non-TB Abnormality
[ ] No Abnormality

E. Has Patient Received Chemotherapy/Prophylaxis in the Past?
[ ] Yes [ ] No [ ] Unknown

F. Are you prescribing Chemotherapy/Prophylaxis?
[ ] Yes [ ] No

Signature of Physician Date of Evaluation

Name of Health Department

This form is not intended to substitute for normal procedure for reporting tuberculosis to the State Health Department.

NOTE TO STATE HEALTH OFFICER: Upon receiving this completed copy from the Local Health Officer, please forward to:

Division of Quarantine, Data Mgr (E03)
Centers for Disease Control and Prevention (CDC)
Atlanta, Georgia 30333

CDC 75.17 (Rev. 3/94)

CLASS B

LOCAL HEALTH DEPARTMENT COPY

Interjurisdictional Tuberculosis (TB) Notification *& Follow-up* Forms

General Instructions: *These forms replace* the current H-20. *The purposes of these forms are* to facilitate and standardize communication between health jurisdictions in order to enhance continuity and completeness of care. *They* will also improve outcome evaluation of verified (confirmed) cases. Initiate *Interjurisdictional TB Notification* form when referring suspects and cases, close contacts, converters, reactors (LTBI) and source case finding to other jurisdictions with exception of the Bi-National Notification Form for jurisdictions within Mexico. **Interjurisdictional TB Notification is initiated after the client is dispositioned on H513.**

Forms:

- ***Interjurisdictional TB Notification*:** Provides a standard array of information to be sent to new jurisdictions for active and suspect cases, close contacts, converters, reactors (LTBI) and source case finding.
- ***Interjurisdictional TB Follow-up:*** Provides a standard array of follow-up information to be transmitted to the referring jurisdiction.

Definitions:

- ***Referring (Sending) jurisdiction*:** The jurisdiction that initiates the interjurisdictional notification. For most case (Class 3) and suspect (Class 5) referrals, the sending jurisdiction will be the same as the reporting jurisdiction.
- ***Reporting jurisdiction*:** The jurisdiction that reported a Class 3 patient
- ***Receiving jurisdiction*:** The jurisdiction that receives the interjurisdictional notification
- ***RVCT*:** The Report of Verified (Confirmed) Case of TB (The national form used to report verified (confirmed) cases to the CDC)

When to send an Interjurisdictional TB Notification:

Notifications should not be sent unless locating information is available, at least a street address, phone number or emergency contact information.

- ***Verified (confirmed) Active and Suspect Cases:*** When Class 3 or 5 patients will be moving out of the area for 30 days or more.
- ***Contacts:*** For close contacts to smear positive Class 3 and Class 5 pulmonary cases or to smear negative Class 3 pulmonary cases and highly suspect Class 5 pulmonary cases. **Multiple contacts to the same case/suspect should have individual notifications sent *or H289 maybe used for contacts out of jurisdiction.***
- ***Documented converters:*** For converters who have initiated treatment and who will be moving out of the area for 30 days or more.
- ***LTBI reactors:*** For Class 2 and 4 patients who have initiated treatment and who will be moving out of the area for 30 days or more. Include specific risk factors for disease progression to assist the receiving jurisdictions in prioritizing follow-up.
- ***Source Case Finding:*** For close associates to Class 3 index case when the index case has a clinical presentation consistent with recently acquired disease (Should primarily be used for associates to children age 3 and younger).

Instructions for Interjurisdictional TB Notification form:

***** To expedite transfer of information of TB suspects and cases, the district will call and fax initial and updated Notification forms to the receiving jurisdiction.***

- ***Referring (Sending) jurisdiction information:*** Complete all information to provide specific contact information for the receiving jurisdiction.
- ***Referral category*****:** Specify the type of patient referral. For verified (Confirmed) cases, supply the RVCT number and State where reported. This will allow the receiving jurisdiction to ensure the F/U is sent to the reporting jurisdiction. **The designated TB Control Health Center Assistant Program Specialist or Senior Typist Clerk will provide RVCT number.**
  For A/B classified immigrants attach pertinent overseas medical documentation when available.
- ***Patient Information*****:** Complete all information. If some elements are unknown, indicate this in the space provided. The *Emergency Contact* should be a relative or associate who is likely to have locating information about the referred patient.
- ***Clinical/Laboratory Information:*** When some or all of the laboratory information is pending at the time of referral, the sending jurisdiction should update the information when available - **Mark updated on ITBN form**. To ensure rapid transfer of information, this update should be accomplished by calling and faxing updated Notification form to the receiving jurisdiction. The TST information in this section should be used for cases/suspects only.
- ***Contact/LTBI Information:*** This section should be used for contacts, converters, and reactors. The TB skin test #1 and #2 should be completed for all converter referrals and for other referrals when appropriate. For contact referrals, exposure information should be completed to enhance appropriate investigation by the receiving jurisdiction.
- ***Medications:*** Complete as indicated. Supply adherence information that may be of importance to the receiving jurisdiction for appropriate patient management. If TB medications have not been started, notate "not started" and give reason.
- ***Comments:*** Include any additional pertinent information, i.e., Chart #, occupation, physical description and etc.
- ***Follow-up request:*** For referrals other than class 3 and 5, indicate if follow-up is requested (It is at the discretion of the sending jurisdiction.) **Note that the decision to provide follow-up for contacts, converters, and reactors is at the discretion of the receiving jurisdiction.**

When to send the Interjurisdictional TB Follow-up

- ***30 days after notification was received***, a status report should be sent to the referring jurisdiction. Follow-up is to be sent to referring jurisdictions for all Class 3 & 5 patients. In instances when the patient is not located within 30 days, "lost" will be the final disposition. If the patient is subsequently located, an update should be sent to the referring jurisdiction.
- ***Interim status*** report may be sent if appropriate (whenever updated information needs to be sent to the referring jurisdiction).
- ***Final status*** must be sent to the referring jurisdiction for all Class 3 & 5 patients to close the case when a final status is known.

Instructions for Interjurisdictional TB Follow-up form:

- ***Return to:*** The receiving jurisdiction should complete this information using the contact information provided on the original Interjurisdictional Referral form (or may use the Interjurisdictional Contact information from the NTCA Directory).
- ***Patient information:*** Complete as indicated.
- ***Case:*** Final outcome in the receiving jurisdiction will be indicated. The F/U should be sent to the reporting jurisdiction.
- ***Suspect/Source Case Finding:*** The receiving jurisdiction will indicate whether the Class 5 case was verified (confirmed), and if so, the method of verification (confirmation). In some cases, the sending jurisdiction may still be the appropriate jurisdiction to report the case. If so, the receiving jurisdiction should also provide a final follow-up status and F/U to the reporting jurisdiction (see Case above). This section can also be used to provide follow-up information for individuals investigated as part of a source case finding.

- ***Contact:*** Some jurisdictions may not provide follow-up on all contact referrals and should indicate "No follow-up performed" on the 30 day status report. If follow-up is performed, indicate the outcome. If treatment is started or continued this should be indicated.
- ***LTBI/Converters:*** Some jurisdictions may not provide follow-up on all LTBI referrals and should indicate "No follow-up performed" on the 30 day status report. If follow-up is performed and the patient is located, indicate if treatment is started or continued. This section can also be used to provide follow-up information for converters.

Instructions when Interjurisdictional TB Follow-up form is not sent by the receiving jurisdiction

- ***30 days/Final status (Class 3 & 5):*** Allow an additional 10 days for the receiving jurisdiction to respond. If no response, contact the receiving jurisdiction for the status of the referral. Number of follow-up attempts by the district is based on the acuity table below.
- ***For any receiving jurisdiction that does not respond per the schedule in the table below, report case information to TBC/H.C.APS for further action.***

ACUITY TABLE

Acuity	Factors	Follow-up	Further Action
A	• Moved prior to medical evaluation, i.e., Alien Referral	• Telephone and/or FAX to receiving jurisdiction 1 time • If patient located, 30 day status is the final disposition	• Consult with supervision
B	• Extrapulmonary disease, i.e., pleural, lymph nodes, bone, etc.	• Telephone and/or FAX to receiving jurisdiction 3 attempts within a 2 week period	• Consult with supervision
C	• Minimal clinical symptoms, i.e., sputum smear (-), abnormal non-cavitary CXR	• Telephone and/or FAX to receiving jurisdiction 3 attempts within a 2 week period	• Consult with supervision
D	• Extensive pulmonary disease, i.e., symptomatic, sputum smear (+), abnormal CXR (especially cavitary), poor clinical or bacteriologic response to therapy • HIV, immuno-compromised and other high risk medical conditions • Non-adherence to medical regimen • Known or suspected MDR TB • Disseminated disease • Child under 4 years of age	• Telephone and/or FAX to receiving jurisdiction 3 attempts within a 2 week period	• Consult with supervision

➢ **File copies of ITBN forms (initial & updated ITBN, follow-up) and FAX cover sheet in the miscellaneous section of the chart. Give the originals to the TBC/H.C. APS.**

Interjurisdictional Tuberculosis Notification

☐ Initial
☐ Update

Referring
Jurisdiction: city _____ county _____ state _____ Date sent ____/____/____
Contact person: _____ Phone ( ) _____ FAX ( ) _____

☐ Verified case State reporting to CDC:_____ RVCT# _____(attached RVCT) ☐ Not reported_____
☐ Suspect case ☐ Close contact ☐ Reactor (LTBI) ☐ Convertor (LTBI) ☐ Source case investigation ☐ A/B Classified Immigrant

Patient name:_____ Sex: ☐ M ☐ F
Last First Middle
AKA _____

Date of birth ____/____/____ Interpreter needed? ☐ No ☐ Yes, specify language_____

New address _____
Number / Street / Apt
Hispanic: ☐ No ☐ Yes
_____
City / State / Zip Code
Race: ☐ White ☐ Black ☐ Asian
☐ Am. Indian / Nat. Alaskan
New telephone ( ) _____ Date of expected arrival ____/____/____ ☐ Other:_____
New health provider: ☐ Unknown ☐ Known (name, address, phone):_____
Emergency contact: Name _____ Phone ( ) _____
Relationship _____

Clinical information for ☐ this referred case/suspect ☐ index case of this contact ☐ not applicable

Date of Collection	Specimen type	Smear	Culture	Susceptibility	Chest X-ray	Other

Site(s) of disease: ☐ Pulmonary ☐ Other(s) specify all_____
Date 1st negative smear ____/____/____ ☐ Not yet Date 1st negative culture____/____/____ ☐ Not yet
TB skin test #1: Date ____/____/____ Result____mm TB skin test #2: Date ____/____/____ Result____mm

Contact/LTBI Information **TB Skin test:** ☐ Not Done
TST #1Date: ____/____/____ Result____mm TST #2 Date: ____/____/____ Result____mm
CXR ☐ Not Done Date:____/____/____ ☐ Normal ☐ Other:_____
Last known exposure to index case ____/____/____ Place/intensity of exposure: _____

Medications ☐ this referred case / suspect ☐ this referred contact / LTBI

Drug	Dose	Start date	Stop date

Planned completion date:____/____/____
DOT ☐ No ☐ Yes: start date____/____/____
☐ Daily ☐ 1x W ☐ 2x W ☐ 3x W
Last DOT Date: ____/____/____
Adherence problems/significant drug side effects:
_____
_____
_____
Patient given _____ Days of medication

Comments _____

Case Follow-Up In 30 days report to referring jurisdiction if located or not located and report final outcome.
Other Follow-Up ☐ Follow-up requested (form attached) ☐ No follow-up requested

Interjurisdictional TB Notification Follow-up

☐ 30-Day Status: ☐ Located ☐ Interim ☐ Not Located ☐ Final

Date Notification Received ____/____/____

Return Follow-Up Form to:

Name _____ Fax Number _____

Address _____ City _____ State _____ Zip Code _____

Jurisdiction _____ Phone Number _____

Patient Name _____ Date of Birth ____/____/____
Last First M.I.

Sex ☐ Male ☐ Female

☐ **Case:** Indicate Reason Therapy Stopped and Outcome Date ____/____/____

Send F/U2 to Reporting Jurisdiction RVCT#_____

☐ Completed

☐ Moved to: Address _____

City _____ County _____ State _____

Telephone ( )_____

☐ Lost (after initially located) ☐ Never located ☐ Uncooperative or refused

☐ Not TB ☐ Died ☐ Other: _____

☐ **Suspect / Source Case Finding:**

☐ Verified by Lab* ☐ Verified by Clinical Definition*

☐ Verified by Provider Diagnosis ☐ Not Verified

☐ Other: _____

* If verified, and referring jurisdiction will submit the RVCT, complete **Case** outcome above.

☐ **Contact (Send local contact form, if follow-up performed):**

☐ No Follow-up Performed ☐ Never Located

☐ Evaluated: ☐ Class II ☐ Class III ☐ Class IV ☐ No infection

☐ Started Treatment ☐ Continuing Treatment

☐ Completed Treatment ☐ Other: _____

☐ **LTBI / Convertors:**

☐ No Follow-up Performed ☐ Never Located ☐ Started Treatment

☐ Continuing Treatment ☐ Completed Treatment ☐ Other:_____

Comments:

Person Completing Form: _____ Date Completed____/____/____

COUNTY OF LOS ANGELES

TEST RESULTS

DEPARTMENT OF HEALTH SERVICES

1. MANTOUX		2. X-RAY		3. LABORATORY TESTS					
DATE	RESULTS	DATE	RESULTS	DATE	TEST	RESULTS	DATE	TEST	RESULTS
	______ MM. G POS G NEG								
	______ MM. G POS G NEG								
	______ MM. G POS G NEG								

4. REASON INH RECOMMENDED

G CONTACT
  G * High Risk
  G Low Risk
G CONVERTER
G TB DISEASE -STABLE
G ** REACTOR WITH HIGH RISK MEDICAL/SOCIAL FACTOR
G **OTHER REACTOR UNDER AGE 35**

5. PRESCRIPTION

DATE ______ & ______ & ______

INH ______ MGS DISPENSE NO. ______

______ TABS/DAY X ______ MOS. REFILL X ______

TB EXTENDED ROLE NURSE TO FOLLOW CASE PER PROTOCOL G YES G NO

______, M.D.

POSSIBLE REACTIONS TO INH HAVE BEEN EXPLAINED. PATIENT UNDERSTANDS THE IMPORTANCE OF TAKING IT DAILY AND WHAT TO DO IN THE CASE ADVERSE EFFECTS OCCUR. PATIENT EDUCATED ABOUT TB INFECTION VS. TB DISEASE

______, M.D./R.N.

6.	7. TOXICITY CHECK									8. METHOD OF EVAL.	9. ISONIAZID	10. NOTES PT. AGE ______	11.
DATE OF EVAL-UATION	ANOREXIA	NAUSEA/VOMITING	FATIGUE	DARK URINE	JAUNDICE	RASH	FEVER	OTHER	NO SIGNS/SYMPTOMS	CL - CLINIC VISIT HM - HOME VISIT TC - TELE. CALL BA - BROKEN APPT.	STRENGTH/ # OF TABLETS DISPENSED	TEMP. ______ B.P. ______ WEIGHT ______ HX OF: G LIVER DISEASE G SEIZURE DISORDER G BCG YR. ______ G HISTORY OF PREVIOUS INH X ______ MONTHS IN ______(YEAR) ANY OTHER CONTRAINDICATIONS FOR INH? ______ OTHER MEDICAL PROBLEMS OR DRUGS: ______ ______	DATE OF NEXT EVAL-UATION
											G 300 MG. G 100 MG. G LIQUID # GIVEN______ EXP DATE ______ G Rx CHANGE Lot#/MFG______	WT ______ LMP ______ # PILLS LEFT ______ REFILL# ______ SIGNATURE RN/MD ______ G SEE PROGRESS NOTES	
											G 300 MG. G 100 MG. G LIQUID # GIVEN______ EXP DATE ______ G Rx CHANGE Lot#/MFG______	WT ______ LMP ______ # PILLS LEFT ______ REFILL# ______ SIGNATURE RN/MD ______ G SEE PROGRESS NOTES	
											G 300 MG. G 100 MG. G LIQUID # GIVEN______ EXP DATE ______ G Rx CHANGE Lot#/MFG______	WT ______ LMP ______ # PILLS LEFT ______ REFILL# ______ SIGNATURE RN/MD ______ G SEE PROGRESS NOTES	
											G 300 MG. G 100 MG. G LIQUID # GIVEN______ EXP DATE ______ G Rx CHANGE Lot#/MFG______	WT ______ LMP ______ # PILLS LEFT ______ REFILL# ______ SIGNATURE RN/MD ______ G SEE PROGRESS NOTES	
											G 300 MG. G 100 MG. G LIQUID # GIVEN______ EXP DATE ______ G Rx CHANGE Lot#/MFG______	WT ______ LMP ______ # PILLS LEFT ______ REFILL# ______ SIGNATURE RN/MD ______ G SEE PROGRESS NOTES	
											G 300 MG. G 100 MG. G LIQUID # GIVEN______ EXP DATE ______ G Rx CHANGE Lot#/MFG______	WT ______ LMP ______ # PILLS LEFT ______ REFILL# ______ SIGNATURE RN/MD ______ G SEE PROGRESS NOTES	
											G 300 MG. G 100 MG. G LIQUID # GIVEN______ EXP DATE ______ G Rx CHANGE Lot#/MFG______	WT ______ LMP ______ # PILLS LEFT ______ REFILL# ______ SIGNATURE RN/MD ______ G SEE PROGRESS NOTES	
											G 300 MG. G 100 MG. G LIQUID # GIVEN______ EXP DATE ______ G Rx CHANGE Lot#/MFG______	WT ______ LMP ______ # PILLS LEFT ______ REFILL# ______ SIGNATURE RN/MD ______ G SEE PROGRESS NOTES	

* For high riskcontact (section 4 above):
Sensitivities of index case:
Sensitive to all primary drugs G YES G NO
Resistant to ______

See reverse side for:
1) Form completion instructions
**2) High risk Medical/Social factors
3) Dosage

H261

TB PREVENTIVE TREATMENT RECORD

PATIENT”S NAME - RECORD NO.

1. PREVENTIVE THERAPY FORM INSTRUCTIONS

Form to be completed on all preventive therapy patients. Upon completion of Rx, send closure copy of H-304 to TB Control.
Rx change: ERN to note dosage change in Section 9 and reflect new Rx in Section 10 notes with signature. Disposition to Clinician for counter co-signature.
The weight, # of pills left, and any other information should be reflected in Section 10 notes. Put any additional information in progress notes.

****2. SECTION 4**

High risk medical/social factors include:
Diabetes Mellitus, positive HIV, prolonged therapy with adrenocorticosteroids, immunosuppressive therapy, some hematologic and reticuloendothelial diseases (e.g., Hodgkins, Leukemia), injection drug use, end stage renal disease, clinical situations associated with substantial rapid weight loss or chronic undernutrition, foreign born persons (under 35 years of age) from high prevalence populations, and residents (under 35 years of age) of facilities for long term care (e.g. correction institutions, nursing homes).
High prevalence countries include Africa, S.E. Asia, Asia (excluding Japan), India, Pakistan, Soviet Union, Middle East, Eastern Europe, Pacific Isles, Caribbean, Latin America.

3. DOSAGE INFORMATION:

INH should be given at 10-20mg/kg for children
(300mg daily for all persons $ 60 lbs.)
Children age 6 years old or less should receive 9 months of INH.
(HIV positive, or TB IV on INH alone, should receive 12 months of INH)

INSTRUCTIONS FOR SPUTUM COLLECTION

NOTICE

1. Brush teeth at bedtime.
2. Upon arising, rinse mouth with water.
3. Before eating or drinking collect sputum on (Date)_____
4. Cough and expectorate whatever comes into mouth and throat in the glass bottle.
5. Replace cap and screw on tightly.
6. Place bottle in metal container, and screw cap on tightly.
7. Keep specimen in cool place (avoid sun and heat) until you bring it to clinic.

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH PROGRAMS

761700P - H-285 (REV. 9-82)

INSTRUCCIONES PARA COLECTAR ESPUTO

1. Lavese los dientes al acostarse.
2. Enjuaguese la baca con agua al levantarse..
3. Colecte el esputo antes de comer o beber algo (fecha)_____
4. Tosa expectorate lo que venga de la garganta y boca en el frasco de vidrio.
5. Tapelo y lo cierra bien.
6. Ponga el frasco adentro del frasco de metal y cierrelo bien.
7. Mantenga el especimen en un lugar fresco (evita el sol y calor) hasta que lo Traiga a la clinica.

DEPARTAMENTO DE SERVICIOS DE SALUBRIDAD DEL CONDADO DE LOS ANGELES
PROGRAMAS DE SALUD PUBLICA

1. INDEX PT. IDENTIFYING INFORMATION

NAME (Last) (First) (MI)

DOB | Sex | Race

Address (Street) (Apt)

(City) (Zip) (Phone)

Living Situation: G Apt. G Street G Shelter
G House G Nursing Home
G Other_______________________________________

2. SOURCE CASE FINDING-ONLY COMPLETE SEC.1 AND 2

G Reactor G Converter

PPD Date:_____________ Result:______________mm

X-Ray Date:____
G Normal G Abnormal

3. INDEX MEDICAL INFORMATION

Site of Disease: G Pulmonary
G Other ____________________

Symptoms: Date Onset: ____________________

Cough: G Yes G No Sputum: G Yes G No

Chest X-Ray: Date: ____________________

G Normal G Cav. G Non-Cav.

TB Meds: G Yes G No

Date:___________________ Specify___________________

Bacteriology:

G Sputum G Other ____________________

Smear: Date ____________________

G Pos G Neg G Pending G Not Done

Culture Date ____________________

G M. TB G Neg G Pending G Not Done

Resistant to: ____________________

4. EMPLOYMENT/SCHOOL/GROUP LIVING

Name of Facility

Address (Street)

(City) (ZIP) (PHONE)

Contact Person

Title

5. ASSESSMENT OF RISK

G Higher risk to transmit TB
G Lower risk to transmit TB

6. COMMENTS

ADDRESSOGRAPH

County of Los Angeles
TUBERCULOSIS CONTROL
CONTACT INVESTIGATION REPORT

Date of Interview: ____________________

Interviewer: ____________________

Telephone: ____________________

Health District: ____________________

FULL NAME OF CONTACT/ASSOCIATE Last / First	DOB OR AGE	PLACE			RISK		ADDRESS AND TELEPHONE No. and Street / City and Phone	RELA-TIONSHIP	PPD		CHEST X-RAY	PREVENTIVE TREATMENT	DISTRICT	COMMENTS H304 CONTROL NUMBER
		Home	Work	Other	High	Low			Initial	Retest			PF #	
									Date mm	Date mm	Date:_________ G Normal G Abnormal	G Yes Date:____________ Drug:_______________ G No Reason:__________		
									Date mm	Date mm	Date:_________ G Normal G Abnormal	G Yes Date:____________ Drug:_______________ G No Reason:__________		
									Date mm	Date mm	Date:_________ G Normal G Abnormal	G Yes Date:____________ Drug:_______________ G No Reason:__________		
									Date mm	Date mm	Date:_________ G Normal G Abnormal	G Yes Date:____________ Drug:_______________ G No Reason:__________		
									Date mm	Date mm	Date:_________ G Normal G Abnormal	G Yes Date:____________ Drug:_______________ G No Reason:__________		
									Date mm	Date mm	Date:_________ G Normal G Abnormal	G Yes Date:____________ Drug:_______________ G No Reason:__________		
									Date mm	Date mm	Date:_________ G Normal G Abnormal	G Yes Date:____________ Drug:_______________ G No Reason:__________		
									Date mm	Date mm	Date:_________ G Normal G Abnormal	G Yes Date:____________ Drug:_______________ G No Reason:__________		

H289

TUBERCULOSIS CONTACT INVESTIGATION REPORT

I. EVALUATION OF RISK TO CONTACTS

Consider the infectiousness of the index case, the duration and proximity of exposure, the air flow/ventilation, and the susceptibility of the contacts.

II. DEFINITIONS OF RISK

1. Higher risk: any uninfected person who shared the air environment with an index case and any of the following risk factors are present:
   a. Index case sputum smear positive, coughing, and not on adequate TB medicines.
   b. Exposure is frequent and prolonged.
   c. Low volume of air exchange.

Note: Young children, HIV+, or other immune-compromised would be considered higher risk despite the absence of the above factors.

2. Lower risk: any person who shared the air environment with an index case and the risk factors listed above are not present.

III. INTERVIEW PROCESS

1. Introduce yourself to the patient.
2. Begin building rapport by:
   a. Explaining your role and the purpose of the interview.
   b. Stressing to the patient that all information will remain confidential.
3. Be aware that socio-cultural influences may affect your attitude and that of the patient.
4. Be attentive, emphatic, and interested in the patient's responses.
5. Continually assess the patient's ability to comprehend your questions - consider patient's educational level and/or language barrier.
6. Begin by reviewing the patient's understanding of TB and how it is transmitted.
7. Discuss the importance of examinations for persons who have shared air with the patient and explain the skin test procedure.
8. As often as possible, put the suggested questions into an open-ended form. (Example: tell me about where you live). This will increase the probability of obtaining complete identifying information about contacts named.
9. Complete the contact roster.

IV. PRIORITY FOR INVESTIGATION

1. Evaluate higher risk contacts first.
2. If data suggests recent infection within the higher risk group, proceed with lower risk group until the infection rate approximates that of the community.

V. SAMPLE QUESTIONS TO ASK INDEX CASE

1. Household or Close Contacts *(modify to obtain information about shelters, missions, jails).*
   a. How long have you lived here?
   b. Previous living arrangement (if here less than 6 months).
   c. Number of others living in home now or in past 6 months.
   d. Have there been daytime, evening or overnight visitors in the past 2 or 3 months? *(friends, relatives, neighbors, children).*
   e. How many bedrooms are in your home? Who do you share a bedroom with?
   f. On nights you do not go home, where do you spend the night?
2. Work or School Contacts
   a. How long at current work/school? Previous work/school (if less than 6 months).
   b. Location of work: outdoor, indoor, more than 1 area. If indoor, describe work space: large, open/small, closed.
   c. Is there forced air ventilation to other work spaces?
   d. How many people/length of time spent in the same work (class) area?
   e. Is lunch/break/other work time spent in a small space with others?
   f. How (transportation method) do you get to and from work (school)?
3. Leisure Contacts
   (Consider as contacts all church, sports club, club, and volunteer associates as well as friends).
   a. How do you spend your spare time? Who are your best friends?
   b. How much time is spent with them and where? (dinner, movies, concerts, bars).

VI. INSTRUCTIONS FOR SUBMISSION:

1. Complete all applicable index case information. Source case finding: Complete only sections 1 and 2.
2. List all contacts or associates identified. Indicate high risk factors (i.e. immunosuppression) in comments section.
3. An H-304 must be completed for every contact listed who resides in Los Angeles County (excluding Long Beach and Pasadena).
4. Contacts residing in index case district: when contact information complete, forward copy to TB Control with dispositioned H-304(s).
5. Contacts residing in other DHS District:
   a. Send one copy of H-289 to TB Control.
   b. Send intact H-304 with copy of H-289 to district of residence.
   c. Receiving district to complete contact information and forward copy to TB Control with dispositioned H-304(s).
6. Contacts residing outside DHS jurisdiction: forward copy to TB Control.

COUNTY OF LOS ANGELES

DEPARTMENT OF HEALTH SERVICES

TB PATIENT REGISTRY/REPORTING FORM

DEMOGRAPHICS

LAST NAME | FIRST NAME | MI | DATE OF BIRTH | SEX ☐ M ☐ F | ALIAS/AKA

RACE ☐ WHITE ☐ BLACK ☐ AMERICAN INDIAN, ALASKA NATIVE ☐ ASIAN/PACIFIC ISLAND (Specify _____) | HISPANIC ☐ YES ☐ NO | CENSUS TRACT

ADDRESS (Number, Street, Apt. #, City, Zip) | PHONE NO.

SOCIAL SECURITY NO. | COUNTRY OF BIRTH | ARRIVED IN U.S ☐ BIRTH | HOMELESS WITHIN PAST YEAR ☐ YES ☐ NO ☐ UNKNOWN

OCCUPATION ☐ HEALTH CARE ☐ MIGRANT ☐ UNEMPLOYED ☐ CORRECTIONAL ☐ OTHER ☐ UNKOWN

CORRECTIONAL FACILITY ☐ NO ☐ FEDERAL PRISON ☐ JAIL ☐ STATE PRISON ☐ JUVENILE

LONG TERM CARE FACILITY ☐ NO ☐ NURSING HOME ☐ HOSPITAL BASED ☐ ALCOHOL/DRUG ☐ RESIDENTIAL ☐ MENTAL HEALTH ☐ OTHER

INJECTION DRUG USE ☐ YES ☐ NO ☐ UNKNOWN

OTHER DRUG USE ☐ YES ☐ NO ☐ UNKNOWN

EXCESS ALCOHOL ☐ YES ☐ NO ☐ UNKNOWN

HIV STATUS DATE: _____ ☐ NEGATIVE ☐ POSITIVE ☐ REFUSED ☐ NOT DONE

INITIAL DIAGNOSIS

MAJOR DISEASE SITE | ADDITIONAL DISEASE SITE | DATE OF DIAGNOSIS | VITAL STATUS AT DIAGNOSIS ☐ ALIVE ☐ EXPIRED DATE OF DEATH:

MANTOUX TEST ☐ NEGATIVE ☐ ANERGIC ☐ NOT READ ☐ UNKNOWN ☐ NOT DONE ☐ POSITIVE - READING: MM ☐ PREVIOUS POSITIVE

PREVIOUS TB DIAGNOSIS ☐ YES IF YES, DATES OF DIAGNOSIS: _____ ☐ NO

INITIAL CXR DATE | IMPRESSION ☐ NORMAL ☐ ABNORMAL ☐ NOT DONE ☐ UNKNOWN | IF ABNORMAL ☐ CAVITARY ☐ NON CAVITARY ☐ HILAR LYMPHADENOPATHY | CURRENT CXR DATE: STATUS: ☐ STABLE ☐ WORSENING ☐ IMPROVING ☐ UNKNOWN

BACTERIOLOGY	SPECIMEN TYPE	SMEAR POS/QUANTITY	NEG.	PENDING	NOT DONE	CULTURE POS/QUANTITY/ORGANISM	NEG.	PENDING	NOT DONE
COLLECTION DATE		☐	☐	☐	☐	☐	☐	☐	☐
COLLECTION DATE		☐	☐	☐	☐	☐	☐	☐	☐
COLLECTION DATE		☐	☐	☐	☐	☐	☐	☐	☐

OTHER CRITERIA FOR DIAGNOSIS (NEEDED IF CULTURE FOR MTB IS NEGATIVE)

☐ CLINICAL IMPROVEMENT ☐ CLINICAL EVIDENCE: (Specify)

INITIAL CHEMOTHERAPY

DRUG	DOSAGE	START DATE
☐ RIFAMATE (INH & RIF)		
☐ PYRAZINAMIDE (PZA)		
☐ ISONIAZID (INH)		
☐ ETHAMBUTOL (EMB)		
☐ RIFAMPIN (RIF)		
☐ OTHER		
☐ OTHER		
☐ OTHER		
☐ OTHER		
☐ OTHER		

DIRECTLY OBSERVED THERAPY ☐ YES ☐ NO

NO CHEMO (Explain)

DRUG SUSCEPTIBILITIES

☐ PENDING

Check appropriate boxes below

	Resistant	Susceptible	Not Done
ISONIAZID (INH)	☐	☐	☐
RIFAMPIN (RIF)	☐	☐	☐
PYRAZINAMIDE (PZA)	☐	☐	☐
ETHAMBUTOL (EMB)	☐	☐	☐
STREPTOMYCIN (SM)	☐	☐	☐
ETHIONAMIDE (ETA)	☐	☐	☐
KANAMYCIN (KM)	☐	☐	☐
CYCLOSERINE (CS)	☐	☐	☐
CAPREOMYCIN (CM)	☐	☐	☐
OTHER _____	☐	☐	☐

REPORTING LABORATORY: _____

SOURCE OF SUPERVISION

☐ PATIENT SUPERVISED BY COUNTY HEALTH CENTER

☐ PATIENT NOT SUPERVISED BY COUNTY HEALTH CENTER

COMPLETE BELOW:

NAME/FACILITY: IF COUNTY HOSPITAL, SPECIFY CLINIC

ADDRESS:

PHONE:

PHYSICIAN IN CHARGE OF PATIENT

ID#

(FOR TB CONTROL ONLY)

DATA PROCESSING#

REASON FOR SUBMISSION

DATE | SUBMITTED BY | PHONE NO. | SUBMIT TO TB CONTROL

☐ TB SUSPECT REGISTRATION

☐ CASE CONFIRMATION

☐ CORRECTED INFORMATION

☐ CHANGE SUPERVISION

REMARKS:

PATIENT IDENTIFICATION

HEALTH CENTER:

PATIENT'S NAME: (Last, First) ,

D.O.B.

RECORD NUMBER

User Name: Date Created: Date Updated:

INSTRUCTIONS FOR COMPLETION OF H-290

1. Please print legibly or type all entries on this form.

2. Demographics Section

Homeless within Past Year: Person who has no home, is not paying rent, does not own a home, and is not steadily living with relatives or friends. Also includes residents of any shelter, SRO hotel or other facility not designated for permanent long-term housing.

Occupation: Check all boxes that apply within the last 24 months.

Correctional Facility: If the patient was in a correctional facility at the time of initial diagnostic studies, please check the box which most closely describes the facility.

Long Term Care Facility: If the patient was in a Long Term Care Facility at the time of initial diagnostic studies, please check the box which most closely describes the facility.

Injection Drug Use: If the patient has, within the past year, used needles for self-injection of drugs not prescribed by a physician. Route of administration may be intravenous, subcutaneous or intramuscular.

Other Drug Use: Refers to use of non-injecting drugs within the past year. Involves use of prescription drugs or illegal drugs that were not injected and not prescribed by a physician. The drugs may be smoked, snorted or swallowed.

Excess Alcohol: Has drinking caused the patient problems and has patient consumed alcoholic beverages in 24 hours. The interviewer should determine if in his or her perception the patient has drinking problems.

HIV Status: Indicate date and results of most recent HIV test. If pending, do not submit until results available.

3. Initial Diagnosis Section

TB Suspect Registration:	Provide as much information as is available in this section.
Case Confirmation:	All fields must be completed for case confirmation. Other Criteria: If a culture for M.TB is negative or not done, other criteria may be needed. Such as granulomas in tissue or CSF chemistry.
Initial Chemotherapy:	Check appropriate drug, dosage, start date. If no chemotherapy given, explanation must be provided.
Drug Susceptibilities:	Check appropriate boxes. List name of laboratory utilized.

4. Source of Supervision

Health Center:	Check box if patient is supervised by your health center.
County Hospital:	Check appropriate box and specify name of hospital and specific clinic the patient is attending, and patient's PF #.
Others:	For all others, including courtesy case, check appropriate box and specify attending physician, address, phone, and name of specific facility, if appropriate, i.e., nursing home etc. Include facility record number, if known.

5. **Patient Identification Section**

Must be completed in full for all H-290 submissions.

6. See TB Control forms manual for more detailed instructions.

COUNTY OF LOS ANGELES

DEPARTMENT OF HEALTH SERVICES

TUBERCULOSIS SCREENING FORM

LOS ANGELES COUNTY TUBERCULOSIS CONTROL PROGRAM

1. DEMOGRAPHICS

NAME:

BIRTHDATE — Month Day Year

SEX — ☐ MALE ☐ FEMALE

RACE — ☐ WHITE ☐ BLACK ☐ ASIANPACIFIC ISLAND ☐ AMERICAN INDIAN

ETHNICITY — ☐ HISPANIC ☐ NON-HISPANIC

ADDRESS

COUNTRY OF BIRTH

DATE ARRIVED IN U.S — Month Day Year

TELEPHONE

HOME:_____

WORK:_____

2. REASON FOR TEST

☐ SCHOOL MANDATE ☐ PRE-NATAL

EDC_____

☐ SCHOOL OTHER ☐ PEDS

☐ DRUG PROGRAM ☐ CHDP

☐ ALIEN-REFUGEE ☐ JOB

☐ Other

A#_____

☐ CONTACT ☐ SOURCE CASE FINDING

RISK: ☐ HIGH ☐ LOW

INDEX PATIENT

NAME_____

PF#_____

SMEAR POSITIVE ☐ YES ☐ NO

CAVITARY DISEASE ☐ YES ☐ NO

3. HIV STATUS

(MUST CHECK ONE)

☐ POSITIVE

☐ NEGATIVE

☐ NOT DONE

☐ REFUSED

4. CLASSIFICATION OF RISK

☐ CONTACT ☐ IDU

☐ DOCUMENTED CONVERTER ☐ HIV RISK

☐ IN U.S. LESS THAN 2 YEARS

☐ UNDER AGE 6 ☐ POS.PPD ONLY

☐ OTHER HIGH RISK (SPECIFY)

_____

5. PREVIOUS MANTOUX

DATE_____

READING (MM)_____

☐ PREVIOUS POSITIVE (MM UNKNOWN)

COMMENTS:

6. CURRENT MANTOUX SKIN TEST

CURRENT MANTOUX	DATE GIVEN	GIVEN BY	DATE READ	READING	READ BY	COMMENTS:
☐ NOT DONE				(mm) (mm)		

7. CHEST X-RAY

MD ORDER _____

☐ INITIAL FILM DATE_____ FILM #_____

☐ REPEAT FILM

DATE _____ FILM #_____

☐ OUTSIDE FILM

DATE _____

☐ NOT DONE

☐ FILM UNSATISFACTORY (PLEASE REPEAT)

☐ NEGATIVE

FILM INTERPRETATION (DESCRIBE BELOW)

☐ TB SUSPECT URGENT

☐ TB SUSPECT ROUTINE

☐ OTHER PATHOLOGY

8. RECOMMENDATION

☐ PREVENTIVE TREATMENT ☐ YES ☐ NO

(IF NO, CHECK BELOW)

☐ DOES NOT MEET CRITERIA

☐ TB SUSPECT

☐ PREVIOUS INH

☐ OTHER (SEE INSTRUCTIONS)

_____

9. DISPOSITION

☐ PREVENTIVE TREATMENT STARTED

DATE_____

☐ NO PREVENTIVE TREATMENT (CHECK REASON)

☐ PT. REFUSED ☐ DIED ☐ LOST

☐ NOT ADVISED ☐ MOVED (SEE INSTRUCTIONS)

COMMENTS:

10. PREVENTIVE TREATMENT CLOSURE

REASON FOR CLOSURE (CHECK ONE BELOW) DATE CLOSED_____

☐ COMPLETED TREATMENT - NUMBER OF MONTHS TAKEN_____

☐ PATIENT STOPPED AMA ☐ ADVERSE REACTION ☐ LOST ☐ DIED

☐ OTHER MEDICAL REASONS ☐ SUPERVISION TO PMD

☐ TB DISEASE ☐ MOVED (SEE REVERSE INSTRUCTIONS)

SUPERVISION	SCREENING CENTER	TREATMENT CENTER	CENSUS TRACT
☐ DHS ☐ OTHER			

PATIENT IDENTIFICATION

HEALTH CENTER:

PATIENT NAME:

RECORD NUMBER:

TUBERCULOSIS SCREENING FORM

PUBLIC HEALTH PROGRAMS SERVICES

H-304 (Revised 5/1/02)

CONTROL NUMBER

INSTRUCTIONS FOR COMPLETION OF TB SCREENING FORM (H-304)
Print Legibly or Type All Copies

1. DEMOGRAPHICS

Client and/or guardian may complete this section. Please review to ensure that all sections are accurately completed.

2. REASON FOR TEST

Please check the appropriate box for the reason why tuberculin test was given.

If client is a contact to a TB case indicate if client is a high or low risk contact and write in the name and PF# of the index case. Also check the appropriate box if this index case was smear positive or had cavitary disease.

If the client is being tested as a result of source case finding please write in the name and PF# of the index case or reactor.

3. HIV STATUS

Check one box for all clients. (If test is pending please wait for results before forwarding copy to TB Control.

4. CLASSIFICATION OF RISK

Check all known risk factors for preventive treatment consideration.

- Contact to active or suspected active case.
- Documented negative mantoux within the last two years.
- Known injectable drug use.
-HIV positive or at high risk for HIV infection (Homo/Bisexual, IDU, Prostitute/Multiple sex partners and/or transfusion prior to 1985).
- Immigrated to U.S. during the previous two years from a TB endemic country. SE Asia, Africa, Asia, Latin America, India, Pakistan, Middle East, Soviet Union, Easter Europe, Pacific Isles.
- Less than sex years of age (five and under).
- Other medical high risks
    a. Persons with abnormal x-ray consistent with non-progressive TB disease.
    b. Persons with Silicosis, Diabetes, prolonged Adrenocorticosteroid Therapy, Immunosuppressive Therapy, Leukemia, Hodgkin's disease.
    c. End stage renal disease.
    d. Clinical situations with rapid weight loss, chronic undernutrition (for additional information see TB manual or call TB Control).
- Homeless/Transients or Hx of incarceration may also be considered high risk and eligible for preventive treatment regardless of age.

5. PREVIOUS MANTOUX

Check for the most recent Mantoux prior to the current Mantoux Test.

6. CURRENT MANTOUX

Complete for current Mantoux Test(s).

7. CHEST X-RAY

Check appropriate box(s). Signature of physician providing the radiologic interpretation is required.

8. RECOMMENDATIONS

Use to determine if patient meets the current guidelines for preventive treatment consideration.

If not recommended, please check reason.

- Does not meet current guidelines
- TB suspect
- Previous completed preventive treatment.
- Other (specify) i.e. medical contraindication.
- If high risk patient not started on preventive therapy, indicate reason in comments section.

9. DISPOSITION

Complete for all persons who meet current guidelines for preventive treatment.

- If preventive treatment is not started check reason.
- Must be signed by person dispositioning patient.

10. PREVENTIVE TREATMENT CLOSURE

For closure of persons placed on preventive treatment.

- Select appropriate box and check (only one).
- Indicate number of months of medication taken.
- Must be signed by persons closing case to follow-up.

SITUATION:

1. Patient did not meet criteria for preventive therapy at time of Statistical Copy submission (example: suspect, prenatal), but preventive therapy initiated at later date: submit Closure Copy to TB Control with section 9 corrected and section 10 completed.
2. Patient restarted on preventive therapy after Closure Copy submitted: send corrected photocopy of original H-304 to TB Control.

INSTRUCTIONS FOR "MOVED"

MOVED BEFORE PREVENTIVE THERAPY INITIATED

-Moved within DHS jurisdiction or lives out of District:
Cross out old address, census tract, treatment center, if applicable. Enter new/updated information. Send entire form to new District only if patient meets guidelines for preventive therapy. (Make coy for your records).

-Moved out of DHS jurisdiction:
If patient meets guidelines for preventive therapy, send Statistical Copy with completed H-20 to TB Control.

MOVED AFTER PREVENTIVE THERAPY INITIATED, BUT NOT COMPLETED

-Moved within DHS jurisdiction:
Cross out old address, census tract, and treatment center. Enter new/updated information. Do not complete Section 10. Send Closure Copy of H-304 to TB Control. TB Control will enter change of address into computer and send to new District of residence, who will disposition Section 10 on completion of therapy and send Treatment Closure Copy to TB Control.

-Moved outside DHS jurisdiction:
Complete H-20 and Closure Copy of H-304 and send to TB Control.

SCREENING CENTER	- Facility providing tuberculin screening or CXR. (for county health centers use code).
TREATMENT CENTER	- Facility providing preventive treatment (use code).

COPY DISTRIBUTION

Copy 1	- Chart Copy
Copy 2	- TB Control Statistic Copy
Copy 3	- X-Ray Copy
Copy 4	- TB Control Preventive Treatment Closure

- Forward copy 2 to TB Control for all forms initiated; after (8) recommendation and/or (9) disposition has been determined.
- Forward copy 4 to TB Control only for patients whose preventive treatment has been discontinued. Check appropriate box for closure type.

COUNTY OF LOS ANGELES • DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH INVESTIGATION • REQUEST FOR LEGAL INTERVENTION

HEALTH CENTER	MEDICAL RECORD NUMBER	DATE

NAME: (LAST) (FIRST) (MIDDLE)

ADDRESS: (STREET) (CITY) (ZIP)	TELEPHONE ( )

EMPLOYER	OCCUPATION

NAME OF LEGAL GUARDIAN (WHERE APPLICABLE)	RELATIONSHIP OF LEGAL GUARDIAN

DESCRIPTION OF PATIENT (VISIBLE MARKS, SCARS, ETC.)	PHOTO IN CHART? YES NO	SOCIAL SECURITY NUMBER

OTHER LOCATING INFORMATION

SEX	AGE	DOB	RACE	HEIGHT	WEIGHT	COMPLEXION	HAIR	EYES	OTHER

DISEASE:
[ ] TUBERCULOSIS (CLASS_____) [ ] STD (SPECIFY)_____ [ ] HIV [ ] OTHER (SPECIFY)_____

TYPE OF PATIENT:
[ ] DIAGNOSED CASE [ ] PROBABLE SOURCE CASE [ ] CONTACT [ ] NONCOMPLIANT [ ] SUSPECT [ ] OTHER (SPECIFY)_____

NAME OF LABORATORY REPORTING: LABORATORY RESULTS WITH DATES:

ACTION DESIRED:

MEDICAL AND PUBLIC HEALTH BASIS FOR ACTION:

PHYSICIAN'S SIGNATURE: DATE:

PUBLIC HEALTH NURSING COMMENTS:

PHNS SIGNATURE: DATE:

PUBLIC HEALTH INVESTIGATION COMMENTS:

APPROVED: DISTRICT HEALTH OFFICER	DATE	APPROVED: CHIEF, PHI (EXCEPT TB)	DATE	APPROVED: CD PROGRAM DIRECTOR	DATE

ACTION TAKEN BY PUBLIC HEALTH INVESTIGATION:

SIGNATURE: DATE:

LH455

DATE OF EVALUATION	/ / WEIGHT			/ / WEIGHT				
SYMPTOMS: (VITAL SIGNS)	DESCRIBE:			DESCRIBE:				
SIDE EFFECTS:	DESCRIBE:			DESCRIBE:				
BIOCHEMISTRY / HEMATOLOGY	DATE: / / SGOT/SGPT OTHER:			DATE: / / SGOT/SGPT OTHER:				
BACTERIOLOGY Results since Last vist: Date / Type	/ /	/ /	/ /	/ /	/ /	/ /		
	SPUTUM 9	SPUTUM 9	SPUTUM 9	SPUTUM 9	SPUTUM 9	SPUTUM 9		
	OTHER 9 _____	OTHER 9 _____	OTHER 9 _____	OTHER 9 _____	OTHER 9 _____	OTHER 9 _____		
Results:	POS NEG UNK	POS NEG UNK	POS NEG UNK	POS NEG UNK	POS NEG UNK	POS NEG UNK		
Smear	9 _____ 9 9	9 _____ 9 9	9 _____ 9 9	9 _____ 9 9	9 _____ 9 9	9 _____ 9 9		
CULTURE	9 _____ 9 9	9 _____ 9 9	9 _____ 9 9	9 _____ 9 9	9 _____ 9 9	9 _____ 9 9		
COLLECTION DATE OF LAST SPECIMEN	DATE / / TYPE			DATE / / TYPE				
DRUG RESISTANCE	YES 9 NO 9 LIST DRUGS:			YES 9 NO 9 LIST DRUGS:				
BACTERIOLOGIC CONVERSION (dates)	LAST POS SMEAR / /	LAST POS CULTURE / /	CULTURE NEG SINCE / /	LAST POS SMEAR / /	LAST POS CULTURE / /	CULTURE NEG SINCE / /		
XRAY DATE / INTERPRETATION	LAST XRAY / / NORMAL 9 ABNORMAL:NOT TB 9 ABNORMAL:TB 9 CAVITARY 9 NON-CAV. 9 _____ STABLE 9 _____ IMPROVING 9 _____ WORSE 9			LAST XRAY / / NORMAL 9 ABNORMAL:NOT TB 9 ABNORMAL:TB 9 CAVITARY 9 NON-CAV. 9 _____ STABLE 9 _____ IMPROVING 9 _____ WORSE 9				
Continuity of Treatment	MORE THAN 30 DAYS OVERDUE FOR MEDS? YES 9 NO 9			MORE THAN 30 DAYS OVERDUE FOR MEDS? YES 9 NO 9				
NOTE/PLAN CURRENT DIAGNOSIS:								
TB MEDS FIRST BEGUN DATE: / /	SPUTUM ORDERED 9 LFT ORDERED 9 SEE PROGRESS NOTES 9 CMR SENT 9 / /			SPUTUM ORDERED 9 LFT ORDERED 9 SEE PROGRESS NOTES 9 CMR SENT 9 / /				

MEDICATION	DRUG	DOSE	SIG	SIZE / #	START	STOP	CONT	DOSE	SIG	SIZE / #	START	STOP	CONT
PLEASE WRITE FULL NAME OF DRUG													
	SELF ADMINISTERED 9 SUPERVISED 9							SELF ADMINISTERED 9 SUPERVISED 9					
RETURN EVALUATION	9 DAYS 9 CHANGE IN SUPERVISION 9 MONTHS Complete H-290							9 DAYS 9 CHANGE IN SUPERVISION 9 MONTHS Complete H-29					
PHYSICIAN SIGNATURE	X RN 9 MD 9							X RN 9 MD 9					

CLOSURE TO FOLLOWUP: DATE OF CLOSURE / /

Indicate REASON FOR CLOSURE

COMPLETED PRESCRIBED COURSE OF THERAPY 9
MOVED OUTSIDE L.A. COUNTY 9 (SUBMIT H-20)
PATIENT DIED 9 DATE / /
LOST TO FOLLOWUP / CLOSED 9
COMPLETED EVALUATION TB DIAGNOSIS NOT CONFIRMED 9
DIAGNOSIS REVERSED - ATYPICAL MYCOBACTERIUM 9

If continuing therapy under another provider indicate new provider on H-290.

PATIENT INFORMATION

HEALTH CENTER:

PATIENT NAME:

BIRTHDATE:

RECORD NO:

County of Los Angeles • Department of Public Health •TB Control Program
TEL (213) 744-6160 FAX (213) 749-0926

Confidential Hospitalized TB Suspect/Case Report (H-803)

****PATIENT:** _____
Last First MI

ADDRESS: _____

_____

PHONE (___) _____

BIRTH DATE: ___/___/___ Sex: ☐ Male ☐ Female

Social Security Number: _____

****IF PT. UNDER 18, (PARENT NAME/DOB):**

_____

Employer/School: _____

OCCUPATION: _____

Race: ☐ White ☐ Black ☐ Am. Indian ☐ Alaska Native
☐ Asian (*Specify*)_____ ☐ Pacific Islander (*Specify*)_____

Ethnicity: ☐ Hispanic ☐ Non-Hispanic

Country of Origin: _____ Date of Entry: ___/___/___

Contact Person (name/ph#) _____

Date of Diagnosis ___/___/___ Pulmonary TB ☐

Skin Test Date ___/___/___ Chest X-ray Date: ___/___/___

Result _____ MM Impression: _____

☐ Not done ☐ Unknown _____

If Pulmonary, check symptoms. _____

☐ Cough ☐ Night sweats

☐ Sputum production ☐ Hemoptysis

☐ Weight loss _____(No. of lbs.)

RECORDED BY: _____

Phone (___) _____ Fax (___) _____

Hospital/Clinic where diagnosed _____

Medical Record # _____

Pt. currently hospitalized? ☐ Yes ☐ No Adm. Date: ___/___/___

Treating Physician: _____

Address: _____

_____

Phone (___) _____

Referred for F/U _____

Address: _____

_____

_____

Phone (___) _____

Will MD be continuing TB care? ☐ Yes ☐ No

Extra Pulmonary TB ☐ (Site) _____

Cavitary ☐ Non-Cavitary ☐

Past history of TB Treatment? ☐ Yes ☐ No

If yes, where, when treated?

_____

If asymptomatic, reason for evaluation _____

Other medical conditions relevant to diagnosis:

_____

_____

BACTERIOLOGY

Pathology Report: _____

_____

Lab Name and Account #: _____

HIV STATUS DATE: ___/___/___

☐ POSITIVE ☐ NEGATIVE ☐ UNKOWN

☐ NOT DONE ☐ REFUSED ☐ PENDING

Patient weight _____

Psychosocial History: _____

_____

Allergies: _____

Specimen Number	Specimen Collection Date	Specimen Type	Smear AFB	Culture M.TB +/-

MEDICATIONS	DOSE	START DATE
Isoniazid		
Rifampin		
Rifabutin		
Ethambutol		
Pyrazinamide		
Rifamate®		
Other		

Additional Comments _____

_____

Date Reported ___/___/___

COUNTY OF LOS ANGELES • DEPARTMENT OF PUBLIC HEALTH • TUBERCULOSIS CONTROL PROGRAM

Confidential Hospitalized TB Suspect/Case Report (H-803) Instructions

Reporting of all patients with confirmed or suspected Tuberculosis is mandated by the State Health and Safety Codes (HSC) Division 105, Part 5 and Administrative Codes, Title 17, Chapter 4, Section 2500 and must be done within 1 day of diagnosis.

Why do you report?

Because it is required. The Health Department performs many vital functions to ensure public health and safety. These functions include contact investigation, home visits, patient education, patient compliance assessment and directly observed therapy (DOT). Tuberculosis Control staff also will assist in facilitating appropriate discharge planning. HSC section 121361 also mandates that, prior to discharge, all tuberculosis suspects and cases in hospitals and prisons have an individualized, written, discharge plan approved by the Local Health Officer (i.e. TB Controller).

Who must report?

1. All health care providers (including administrators of healthcare facilities and clinics) in attendance of a patient suspected to have, or confirmed with, active tuberculosis, must report within 1 working day from the time of identification (California Code: Title 17, Chap. 4, Sec. 2500).

2. The director of any clinical lab or designee must report laboratory evidence suggestive of tuberculosis to the Health Department on the same day that the physician who submitted the specimen is notified (California Code: Title 17, Chap. 4, Sec. 2505).

When do you report?

1. When the following conditions are present:
   - ⋆ signs and symptoms of tuberculosis are present, and/or
   - ⋆ the patient has an abnormal CXR consistent with tuberculosis, or
   - ⋆ the patient is placed on two or more anti-TB drugs
2. When bacteriology smears or cultures are positive for acid fast bacilli (AFB)
3. When the patient has a positive culture for *M. tuberculosis* complex (i.e., *M. tuberculosis, M. bovis, M. canettii, M. africanum, M. microti)*.
4. When a pathology report is consistent with tuberculosis

How do you report?

The Confidential Hospitalized TB Suspect/Case report (H-803) (on the back of this form) is to be completed in its entirety and submitted to Tuberculosis Control. The Confidential Morbidity Report (CMR) should not be used for hospitalized patients.

1. BY FAX: (213) 749-0926

2. BY PHONE: (213) 744-6160: After hours, leave your name, phone or pager #, patient's name, DOB and medical record number on voicemail.

3. BY MAIL: Tuberculosis Control Program
   2615 S. Grand Avenue, Room 507
   Los Angeles, CA 90007

Reporting tuberculin skin test

Definition of a Positive Tuberculin Skin Test:

≥ 5 mm of induration is considered positive for contacts, suspects and HIV+ or immuno-suppressed individuals of any age.

≥10 mm of induration is considered positive for all other screening subjects of any age.

A positive tuberculin skin test with a normal chest x-ray is not reportable unless the patient is age 3 years or younger. However, health department follow-up may be requested for PPD reactors who also meet one of the following criteria. The reason for referral must be noted on the Remarks section.

a. HIV infected or at risk for HIV infection
b. Contact to infectious case of tuberculosis
c. Abnormal chest film consistent with old TB or silicosis
d. Children 3 years old or under with a positive tuberculin skin test
e. Documented converters
f. Medical conditions that increase TB risk:
   - ♦ Diabetes mellitus
   - ♦ Prolonged steroid therapy
   - ♦ Immunosuppressive therapy
   - ♦ End stage renal disease
   - ♦ Unexplained rapid weight loss

County of Los Angeles ● Department of Public Health ● TB Control Program
TEL (213) 744-6160 FAX (213) 749-0926

Confidential Hospitalized TB Suspect / Discharge Care Plan / Approval Request

Patient Name: _____ **Submitted By:** _____

D.O.B. ___/___/_____ MR# _____ Phone (___) _____ Pager (___) _____

Facility _____

Fax # (___) _____

If Pulmonary: Dates of three consecutive negative smears

___/___/_____, ___/___/_____, ___/___/_____

Discharge to: [ ] Home [ ] Shelter [ ] SNF [ ] Jail/Prison [ ] Other _____

Discharge address and phone: _____

_____

Date patient to be discharged ___/___/_____ **F/U Appt. Date** ___/___/_____

Physician agreeing to assume TB care _____ Phone # (___) _____

Health Care Facility _____

Address _____

Discharge TB medication regimen:

(Indicate total daily dose)

Rifamate® (INH+RIF)* _____ pills/day
Rifater®(INH+RIF+PZA) _____ pills/day
INH _____ mg
Rifampin _____ mg
Ethambutol* _____ mg
Pyrazinamide* _____ mg
Other _____ mg
Side Effects _____

*Current CDC/ATS and Los Angeles County TB Control recommendations for treatment of uncomplicated TB for 2 months followed by INH & RIF for 4 months.

Medical complications (*specify):*

_____

_____

# of days of medication supply_____

(Must be sufficient to supply patient until follow up provider appointment).

Does the patient have risks that indicate Directly Observed Therapy (DOT)?

[ ] Mental Impairment
[ ] Homeless
[ ] HIV
[ ] Hx of any non-compliant behavior
[ ] Substance

*Contact TB Control if uncertain about risk.

Contact Information/Household composition:

Number of people in household? _____
Are there children age 5 years and younger? [ ] Yes [ ] No
Are there individuals immunocompromised? [ ] Yes [ ] No

Tuberculosis Control use only:

DHS Review - Problems Noted _____

_____

Action taken before discharge _____

_____

Reviewed by _____ *Date reviewed* ___/___/_____
Approved by _____ *Date approved* ___/___/_____

Discharge Approved

[ ] Yes [ ] No

Date ___/___/_____

The Confidential Tuberculosis Suspect Case Report (H-803) form must be on file at Tuberculosis Control or submitted with this form

Los Angeles County ● Department of Public Health
Tuberculosis Control Program
2615 S. Grand Ave. Room 507 Los Angeles, CA 90007
Phone: 213-744-6160 Fax: 213-749-0926

Confidential Hospitalized TB Suspect/Case Discharge Care Plan / Approval Request (H- 804) Instructions

Discharge of a Suspect or Confirmed Tuberculosis Patient

As of January 1, 1994, State Health and Safety Codes mandate that patients suspected or confirmed with tuberculosis may not be discharged or transferred from a health facility (e.g. hospital) without prior approval of the Local Health Officer (i.e., TB Controller).

To facilitate a timely and appropriate discharge, the provider should submit a written discharge plan to Tuberculosis Control 1 to 2 days prior to the anticipated discharge. Tuberculosis Control will review the discharge plan for approval or denial.

Health Department Response Plan:

Weekly discharge (Non holiday 8:00 am- 5:00 pm): The written discharge plan should be submitted preferably by FAX or mail.

Tuberculosis Control staff will review the discharge plan and notify the provider **within 24 hours** of approval or inform the provider of any additional information/action required or needed for approval prior to discharge.

If a home evaluation is required to determine if the environment is suitable for discharge, health department staff will make a visit.

Holiday and Weekend Discharge: All arrangements for discharge should be made in advance when weekend discharge is anticipated. When unusual circumstances necessitate weekend or holiday discharge, the provider will phone the Los Angeles County Operator at (213) 974-1234 and ask to speak with the **Public Health Administrative Officer of the Day** (AOD). A response will usually occur within one hour. The process outlined above will be followed. If the discharge cannot be approved, the patient must be held until the next business day until appropriate arrangements can be made *(to fulfill State requirements for communicable disease reporting, the Confidential Hospitalized Tuberculosis Suspect/Case Report must be completed and submitted prior to or concurrently with the Confidential Hospitalized Tuberculosis Suspect/Case Discharge Care Plan /Approval Request).*

(NOTE: This form is used for discharge care planning only. Call the Tuberculosis Control Program prior to faxing documents to ensure timely processing.)

Rev: 7/06

COUNTY OF LOS ANGELES

DEPARTMENT OF HEALTH SERVICES

HOSPITAL TUBERCULOSIS REPORT

TO (CATCHMENT AREA / PUBLIC H.C.): **(CODE)**:

FROM (COUNTY HOSPITAL):

(OTHER NON-COUNTY FACILITY):

PATIENT NAME: AKA: DP_NO:

ADMISSION ADDRESS:

STREET:
CITY: PHONE:
STATE: ZIP CODE: CENSUS:

DISCHARGE ADDRESS:

STREET:
CITY: PHONE:
STATE: ZIP CODE: CENSUS:

DOB:	SEX:	RACE:	HISP:	MARITAL:	SSN:	HOSPITAL CHART NO:

BIRTH COUNTRY: DATE ARRIVED USA: WITHIN PAST YEAR: HOMELESS: IDU: OTHER DRUG USE: ALCOHOL:

OCCUPATION(S) WITHIN LAST 24 MONTHS: [ ] -HEALTH CARE [ ] -CORRECTIONAL EMPLOYEE [ ] -MIGRANT WORKER [ ] -OTHER [ ] -UNEMPLOYED [ ]-UNKNOWN

CORRECTIONAL FACILITY AT DIAGNOSIS:

LONG TERM CARE FACILITY AT DIAGNOSIS:

TYPE OF REPORT

[ ] ADMISSION

DATE:

[ ] DISCHARGE

DATE:

[ ] -WMA [ ] -AWOL

[ ] -AMA [ ] -DIED

[ ] -TRANSFER

[ ] -GOTCH
APPROVED- [ ]

[ ] -OUTPATIENT VISIT

DATE:

DIAGNOSIS

ADMISSION DIAGNOSIS (COMMENTS):

ADMISSION SYMPTOMS:

[ ] -COUGHING [ ] -SPUTUM [ ] -HEMOPTYSIS
[ ] -NIGHT SWEATS [ ] -FEVER [ ] -WT. LOSS

OTHER:
OTHER:

CURRENT TB DIAGNOSIS:

[ ] TB SUSPECT Class V [ ] TB DISEASE Class III [ ] OLD HEALED TB DISEASE Class IV

PRIMARY DISEASE SITE: :

SECONDARY DISEASE SITE: :

INITIAL CHEST X-RAY REPORT DATE:
IMPRESSION:

CURRENT CHEST X-RAY REPORT DATE:
CURRENT STATUS:

Comments:

TB CHEMOTHERAPY

DRUG	DOSAGE	D_STARTED	D_STOPPED

SKIN TEST RESULTS

D_TESTED	TYPE	RESULT

HIV STATUS

D_TESTED	BS.CD4 COUNT	RESULT

HIV RISK FACTORS:

SOURCE OF SUPERVISION

PATIENT TO BE FOLLOWED BY:

[ ] DIST. OF RESIDENCE / CO. HOSPITAL OR CLINIC
[ ] PMD / PRIVATE HOSPITAL OR CLINIC

PROVIDER NAME

PROVIDER FACILITY PHONE NUMBER

ADDRESS

CITY STATE ZIP CODE

REMARKS:

Completed By Date

PUBLIC HEALTH PROGRAMS SERVICES
H-1365 (Revised 1/1/02)

CONTROL NUMBER:

(PATIENT'S IDENTIFICATION)

AKA:

DATE OF BIRTH:
HEALTH CENTER
DISTRICT RECOR

COUNTY OF LOS ANGELES

DEPARTMENT OF HEALTH SERVICES

HOSPITAL BACTERIOLOGY REPORT

TO (CATCHMENT AREA / PUBLIC H.C.): **(CODE)**:	**FROM** (COUNTY HOSPITAL): (OTHER NON-COUNTY FACILITY):

REGARDING:	DOB: SSN: DP_NO:
AKA:	HOSPITAL CHART NO:
ADMISSION ADDRESS: CITY: STATE: ZIP CODE: CENSUS: PHONE:	DISCHARGE ADDRESS: CITY: STATE: ZIP CODE: CENSUS: PHONE:

BACTERIOLOGY RESULTS

SPECIMEN CODE : DESCRIPTION	DATE COLLECTED	LAB CODE	SMEAR RESULTS RESULT	SMEAR RESULTS QUANTITY	CULTURE RESULTS RESULT	CULTURE RESULTS QUANTITY	SPECIMEN NO.	TB TYPE	ATYPICAL

BACTERIOLOGY SUSCEPTIBILITY - % GROWTH COMPARED TO CONTROL

DATE COLLECTED	SPECIMEN NO.	LAB	DRUG CODE : DESCRIPTION	CONCENTRATION	% GROWTH	RESULT CODE : DESC

ADDITIONAL TEST RESULTS / COMMENTS:

Signed By _____ Date _____

HOSPITAL BACTERIOLOGY REPORT
H-1397 (Revised 1/1/02)

REPORT TYPE

(PATIENT'S IDENTIFICATION)

DATE OF BIRTH:
HEALTH CENTER:
DISTRICT RECORD #:

CONTROL NUMBER: **308202**

TUBERCULOSIS SKIN TEST REPORT (POSITIVE)

Name _____

Street _____ City _____

Birthdate _____ Health Center _____

THIS REPORT IS IMPORTANT. IT EXPLAINS YOUR SKIN TEST RESULTS. PLEASE READ IT AND KEEP IT!

YOUR MANTOUX TUBERCULIN TEST ON ___/___/____ WAS _____ mm of induration to 5TU PPD. This is considered a POSITIVE test.

This means that sometimes in the past you were exposed to someone with TB disease and TB germs have entered and can remain alive in your body for life. The most likely location for the germs to survive is in your lungs.

THIS DOES NOT NECESSARILY MEAN THAT THE TB GERMS HAVE DONE ANY DAMAGE!

Usually body defenses build up and prevent the germs from multiplying and causing damage.

To find out if your lungs are normal, you must have a chest x-ray, as soon as possible. This can be done either by your private physician or the Public Health Clinic near where you live.

Even if the chest x-ray is normal, the TB germs in your body may still cause serious lung damage later in life. For this reason, the doctor may recommend that you take a drug, Isoniazid (INH), in order to prevent the TB germs from multiplying, spreading, and causing damage.

If you do not take INH, you should contact your doctor or the public health clinic for instructions and a repeat chest x-ray as soon as any one of the following conditions develop: chronic cough, unexplained fevers, unexplained weight loss, night sweats, diabetes, surgery to remove stomach, silicosis (black lung), cancer, cortisone (steroid)treatment, AIDS, or positive blood test for AIDS.

These conditions may increase the risk of your developing TB disease.

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
H-1816 (2/92) 76T789A

(SPANISH) (POSITIVE)

(TUBERCULOSIS SKIN TEST REPORT)
PRUEBA DE PIEL PARA TUBERCULOSIS

NOMBRE _____
DIRECCION _____
FECHA DE NACIMIENTO _____
CENTRO DE SALUD _____

ESTE INFORMES ES IMPORTANTE. EXPLICA EL RESULTADO DE SU PRUEBA DE LA TUBERCULINA (MANTOUX). POR FAVOR LEALO Y GUARDELO.

Su Prueba de la Tuberculina (MANTOUX) en el dia ____/____/____ fue de _____mm de diàmetro, lo cual significa que el resultado es POSITIVO.

Esto quiere decir que alguna vez en el pasado usted se expuso a los gèrmenes de la Tuberculosis. Esto gèrmenes pueden permanecer vivos en su cuerpo por el resto de su vida. El sitio mas probable donde los gèrmenes pueden vivir, es en sus pulmones.

ESTO NO QUIERE DECIR QUE LOS GERMENES DE LA TUBERCULOSIS HAN CAUSADO ALGUN DAÑO.

Generalmente las defensas del cuerpo se hacen mas fuertes y evitan que los gèrmenes se multipliquen y causen daño.

Para saber si sus pulmones estan normales debe hacerse una radiografia de los pulmones, tan pronto como sea posible. Esta radiografia puede hacerse con su doctor partivular o en un centro de salud cercano a donde vive.

Aùn cuando el resultado de las radiografias sea normal, los gèrmenes de la tuberculosis pueden causar problemas serios a los pulmones mas tarde en su vida. Por esta razòn el doctor puede recetarie que tome una medicina llamada Isoniazid (INH), para prevenir que los gèrmenes de la tuberculosis se multipliquen y causen dano.

Si usted no toma la medicina INH y se le desarrollan algumos de los siguientes sintomas en el futuro, debe consultar con su mèdico: tos crònica o constante, fiebre o sudores durante la noche, pèrdida de peso inexplicable, Diabetes, Silicosis, Cancer, tratamiento con cortisona o infecciòn con el vìrus del SIDA. Estas condiciones de salud pueden aumentar el riesgo de que se le desarrolle la enfermedad de la Tuberculosis.

CONDADO DE LOS ANGELES DEPARTAMENTO DE SERVICIOS DE SALUD
H-1816 (2/92) 76T789A

TUBERCULOSIS PATIENT DISCHARGE STATUS

PATIENT'S NAME
RECORD NUMBER

ORIGINAL DIAGNOSIS	
TREATMENT FROM:	TO:
DRUGS USED: G INH G EMB G RIF G SM. G OTHER _____	
SPUTUM NEGATIVE SINCE:	G MICRO G CULTURE
LAST X-RAY DATE DATE:	G ESSENTIALLY NEGATIVE G TB STABLE

DISTRICT HEALTH OFFICER: DATE:

BY: _____

(DISTRICT HEALTH CENTER STAMP)

COUNTY OF LOS ANGELES
DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH PROGRAMS

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH PROGRAMS - Tuberculosis Control

YOUR TUBERCULOSIS DISCHARGE

We are pleased to let you know that you have completed a full course of treatment for your tuberculosis and that the chances are extremely small that you will have further trouble from this disease. For only need return to clinic if you develop any of the following symptoms of a relapse: cough with sputus production for more than 3-4 weeks, coughing up of blood, pain in the chest on breathing, unexplained loss of appetite and weight, or fever with night sweats for more than 3 weeks.

You should also see your doctor or return to clinic for a repeat chest x-ray if any of the following conditions develop which might increase the risk of the disease returning: Diabetes, surgery to remove stomach, silicosis (blacklung), cancer, cortisone treatment, pregnancy, prolonged-physical or emotional stress.

Please **KEEP THIS CARD** among your important papers, so that if you see a doctor who is not familiar with the treatment you have had at this agency, he will have the information given to help him make a diagnosis and prescribe the proper treatment with as little delay as possible.

CONDADO DE LOS ANGELES
DEPARTMENTO DE SERVICIOS DE SALUBRIDAD
PROGRAMAS DE SALUD PUBLICA - Control de Tuberculosis

Tenemos el placer de comunicarle que ha completado su tratamiento de tuberculosis y que hay muy pocas posibilidades de que esta enfermedad vuelva a molestarlo. Por esta razon, no haremos ninguna cita de rutina en la clinica en el futuro. Usted solo necesitara volver a la clinica si usted presenta cualquiera de los sintomas de relapso siguientes: tos con produccion de esputos por mas de tres o cuatro semanas; tos con sangre; dolor en el pecho al respirar; perdida de apetito o de peso inexplicables, o fiebre con sudores nocturnos por mas de tres semanas.
Usted debe tambien ver al doctor, o volver a la clinica para repetir los rayos-x de pecho; si desarrolla cualquiera de la condiciones siguientes que pueden aumentar el riesgo de que la enfermedad retorne: diabetes, cirugia para extraer el estomago, silicosis (o pulmon negro), cancer, tratamiento con cortisona, embarazo, tension proplongada fisica o emocional.
Por favor **GUARDE ESTA CARTA** con sus papeles importantes, asi si usted ve a un doctor que no esta familiarizado con el tratamiento que usted ha recibido en esta agencia, el tendra la information que aparece para ayudarlo a diagnosticar y prescribir el tratamiento apropiado con el menor retraso posible.

76Y499D - H-1832

COUNTY OF LOS ANGELES • DEPARTMENT OF HEALTH SERVICES
313 NORTH FIGUEROA STREET • LOS ANGELES, CALIFORNIA 90012 • (213) 974-

Please refer all correspondence to this Health Center:

Patient Record No. _____

Your recent **G** chest x-ray **G** tuberculin skin test indicates that you have probably been infected with tuberculosis germs. The box checked below applies to you:

G Your chest x-ray is normal; however, the TB germs in your body may still cause serious lung damage later in life. For this reason the doctor will, in most instances, recommend that you take a drug, Isoniazid (INH) in order to prevent the TB germs from multiplying, spreading and causing disease.

G You need further tests/evaluation to determine whether or not the TB germs have caused any significant damage or disease. If disease occurs, tuberculosis can be cured by taking anti-tuberculosis medication. If the disease is discovered early enough, hospitalization is usually not necessary and your normal work schedule and life style can be continued.

G The doctor started you on Isoniazid (INH) preventive treatment. If taken for the full treatment period, the medication will significantly reduce the risk of you ever developing TB disease in the future. Without INH there is a much greater chance that the TB germs in your body may multiply, spread and cause lung damage.

For the reason checked above, we have made the following appointment for you:

DATE _____

TIME _____

PLACE _____

If you cannot keep this appointment, please call _____ to reschedule for a day and time more convenient.

Very truly yours,

_____ M.D.
District Health Officer

COUNTY OF LOS ANGELES • DEPARTMENT OF HEALTH SERVICES

313 NORTH FIGUEROA STREET • LOS ANGELES, CALIFORNIA 90012 • (213) 974-

Please refer all correspondence to this Health Center:

Patient Record No. _____

Sus recientes **G** rayos-X de pecho **G** prueba cutánea de tuberculina, indican que probablemente Ud. esté infectado con gérmenes de tuberculosis. El espacio marcado más abajo es el que se aplica a Ud.:

G Sus rayos-X de pecho son normales; sin embargo, más adelante los gérmenes de tuberculosis pueden aún causar daño serio a sus pulmones. Por esta razón, su doctor recommendará en muchos casos, una droga, Isoniazid (INH) con el propósito de prevenir que los gérmenes de tuberculosis se multipliquen, exparciéndose y causando enfermedad.

G Ud. necesita más pruebas/evaluación para determinar si los gérmenes de tuberculosis han causando o no daño o enfermedad. Si hay enfermedad, la tuberculosis se puede curar tomando medicadión antituberculosa. Si la enfermedad se descubre pronto, usualmante no es necesario hospitalizarse y se puede continuar la rutina de trabajo y el estilo de vida normales.

G El doctor ha comenzado a darle el tratamiento preventivo con Isoniazid (INH). Si se toma por el periodo de tratamiento completo, esta medicación reducirá de manera significativa el riesgo de que Ud. vuelva a desarrollar tuberculosis en el futuro. Sin INH hay muchas más posibilidades de que los gérmenes de tuberculosis se multitpliquen en su cuerpo, se divulguen y causen daño a los pulmones.

Por la razón que hemos marcado más arriba, hemos hecho una cita para Ud. en:

FECHA _____

HORA _____

LUGAR _____

Si usted no puede mantener esta cita por favor llame al _____ para fijar otro horario mas conveniente.

Lo saluda atentamente,

_____ M.D.

Jefe de Salud de Distrito

COUNTY OF LOS ANGELES • DEPARTMENT OF HEALTH SERVICES

313 NORTH FIGUEROA STREET • LOS ANGELES, CALIFORNIA 90012 • (213) 974-

Please refer all correspondence to this Health Center:

Patient Record No. _____

Your **G** chest x-ray **G** tuberculin skin test indicates that you have probably been infected with tuberculosis germs. The box checked below applies to you:

G Your chest x-ray was normal; however, the TB germs in your body may still cause serious lung damage later in life. For this reason the doctor will, in most instances, recommend that you take a drug, Isoniazid (INH) in order to prevent the TB germs from multiplying, spreading and causing disease at a later time.

G You need further tests/evaluation to determine whether or not the TB germs have caused any significant damage or disease. If disease occurs, TB can be cured by taking anti-tuberculosis medication. If the disease is discovered early enough, hospitalization is usually not necessary and your normal work schedule and life style can be continued.

Since you have not kept the appointments that were scheduled, we are closing your record at this time. However, having not completed

G the prescribed course of INH **G** further tests/evaluation

we encourage you to return to clinic or to your physician if you develop any of the following symptoms of tuberculosis disease; cough with sputum production for more than 3-4 weeks; coughing up of blood; pain in the chest on breathing; unexplained loss of appetite and weight; fever with night sweats for more than 3 weeks.

You should also see your doctor or return to clinic for a chest x-ray if any of the following conditions develop which might increase the risk of your developing TB disease: Diabetes; surgery to remove stomach; silicosis (black lung); cancer; cortisone treatment; pregnancy; AIDS, or positive blood test for AIDS.

Very truly yours,

_____ M.D.
District Health Officer

COUNTY OF LOS ANGELES • DEPARTMENT OF HEALTH SERVICES

313 NORTH FIGUEROA STREET • LOS ANGELES, CALIFORNIA 90012 • (213) 974-

Please refer all correspondence to this Health Center:

Patient Record No. _____

Sus **G** rayos-X de pecho **G** prueba cutánea de tuberculina, indican que probablemente Ud. esté infectado con gérmenes de tuberculosis. El espacio marcado más abajo es el que se aplica a Ud.:

G Sus rayos-X de pecho son normales; sin embargo, más adelante los gérmenes de tuberculosis puede aún causar daño serio a sus pulmones. Por esta razón, su doctor recommendará en muchos casos, una droga, Isoniazid (INH) con el propósito de prevenir que los gérmenes de tuberculosis se multipliquen, exparciéndose y causando enfermedad.

G Ud. necesita más pruebas/evaluación para determinar si los gérmenes de tuberculosis han causando o no daño o enfermedad. Si hay enfermedad, la tuberculosis se puede curar tomando medicadión antituberculosa. Si la enfermedad se descubre pronto, usualmante no es necesario hospitalizarse y se puede continuar la rutina de trabajo y el estilo de vida normales.

Debido a que Ud. no ha concurrido a la cita que la habiamos dado, ahora cerramos su historia clinica por el momento. Sin embargo, como no ha completado:

G el curso prescripto de INH **G** prueba/evaluación posterior le

aconsejamos que vuela a la clínica o a ver a su médico si desarrolla cualquiera de los síntomas de tuberculosis siguientes: tos con producción de esputos por más de 3-4 semanas; tos con sangre: dolor en el pecho a respirar; pérdida inexplicable de apetito o de peso; fiebre nocturna con sudores; por más de 3 semanas.

Ud. debe también ver al doctor o volver a la clínica por rayos-X de pecho si desarrolla cualquiera de las condicions siguientes que pueden aumentar el riesgo de desarrollar tuberculosis: Diabetes; cirugía para extraer el estómago; silicosis (pulmón negro); cáncer; tratamiento con cortisona; embarazo; SIDA , or prueba de sangre positiva para el SIDA.

Le saluda atentamente,

_____ M.D.

Jefe de Salud del Distrito

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

TB SCREENING HISTORY

TO BE COMPLETED BY THE NURSE

Date of this skin test ____/____/____ Reading ____ mm **G** Positive **G** Negative

Reason skin test done **G** Work **G** School **G** TB contact **G** Prenatal **G** Alien/refugee **G** Other

If other, specify: _____

How old are you? _____ When did you come to the U.S.? Month _____ Year _____

HAVE YOU EVER HAD?

(Check one - Yes or No)

1. Previous skin test for TB _____ **G** Yes **G** No
   If yes: Date: ____/____/____ Result: _____
2. Medicine for TB or for a positive skin test _____ **G** Yes **G** No
3. BCG vaccination If yes: When? ____/____/____ _____ **G** Yes **G** No
4. Known exposure to someone with TB _____ **G** Yes **G** No
   If yes: When? ____/____/____ Name: _____
5. Hepatitis (jaundice or liver problems) _____ **G** Yes **G** No
6. Part of your stomach removed _____ **G** Yes **G** No
7. A blood transfusion If yes: When? ____/____/____ _____ **G** Yes **G** No
8. A blood test for the AIDS virus _____ **G** Yes **G** No
   If yes, the date given ____/____/____ Result _____

DO YOU NOW HAVE?

9. Diabetes _____ **G** Yes **G** No
10. Cancer _____ **G** Yes **G** No
11. Kidney problems (dialysis) _____ **G** Yes **G** No
12. Chronic cough _____ **G** Yes **G** No
13. Blood in sputum _____ **G** Yes **G** No
14. Night sweats or fever _____ **G** Yes **G** No
15. Loss of appetite _____ **G** Yes **G** No
16. Shortness of breath _____ **G** Yes **G** No
17. Weight loss _____ **G** Yes **G** No
18. Epilepsy (seizures) _____ **G** Yes **G** No
19. Allergies to any medicines _____ **G** Yes **G** No
    If yes, List them _____

DO YOU?

20. Drink alcohol (liquor) every day _____ **G** Yes **G** No
21. Take steroids or cortisone _____ **G** Yes **G** No
22. Take any other medicines _____ **G** Yes **G** No
    If yes: List them _____
23. Use needles to inject street drugs (now or before) _____ **G** Yes **G** No
24. Have sex with **G** Males **G** Females **G** Both **G** None **G** Multiple partners

FOR WOMEN ONLY: What is the date of your last menstrual period? ____/____/____

TO BE COMPLETED BY THE NURSE:

G Discussed positive PPD (H-1816) given
G Chest X-ray appointment:
G Referred **G** Given, Date ____/____/____
G Informational letter (H-2933) given

Nurse's Signature:
Date: ____/____/____

PATIENT IDENTIFICATION

NAME:

BIRTHDATE:

RECORD #:

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

HISTORIA MEDICA DE TUBERCULOSIS

TO BE COMPLETED BY THE NURSE

Date of this skin test ____/____/____ Reading ____ mm **G** Positive **G** Negative

Reason skin test done **G** Work **G** School **G** TB contact **G** Prenatal **G** Alien/refugee **G** Other

If other, specify: _____

Cuantos años tiene? _____ Cuando vino a los estados unidos? Mes _____ año _____

HA TENIDO USTED?

(Marque Una – Si o No)

1. Prueba de Tuberculosis anteriormente _____ **G** Si **G** No
   Si contesto si: Fecha: ____/____/____ Resultado: _____
2. Medicina para TB o prueba positive? _____ **G** Si **G** No
3. Vacuna contra la Tuberculosis BCG Si contesta si: Cuando? ____/____/____ **G** Si **G** No
4. Contacto con alguien con Tuberculosis _____ **G** Si **G** No
   Si contesta si: Cuando? ____/____/____ Nombre?: _____
5. Hepatitis (problemas del hígado, o piel amarilla) _____ **G** Si **G** No
6. Necesidad de que le extrajeran parte del estómago? _____ **G** Si **G** No
7. Transfución de sangre? Si contesta si: Cuando? ____/____/____ _____ **G** Si **G** No
8. Prueba de sangre para el virus del SIDA _____ **G** Si **G** No
   Si contesta si: Cuando? ____/____/____ Resultado: _____

TIENE USTED?

9. Diabetes _____ **G** Si **G** No
10. Cáncer _____ **G** Si **G** No
11. Problemas con los riñones (diálysis) _____ **G** Si **G** No
12. Tós crónica _____ **G** Si **G** No
13. Sangre en la flema _____ **G** Si **G** No
14. Fiebre o mucho sudor por la noche? _____ **G** Si **G** No
15. Pérdida de apetito _____ **G** Si **G** No
16. Corto de respiración _____ **G** Si **G** No
17. Pérdida de peso _____ **G** Si **G** No
18. Epilepsia (ataques) _____ **G** Si **G** No
19. Alergia a algún medicamento _____ **G** Si **G** No
    Si contesta si: Apunte acquí _____

USTED?

20. Toma alcohol (licor) todos los dias _____ **G** Si **G** No
21. Toma steroide o cortisona _____ **G** Si **G** No
22. Esta tomando medicinas actualmente _____ **G** Si **G** No
    Si contesta si: Apunte todas _____
23. Usa agujas para inyectarse drogas (ahora o antes) _____ **G** Si **G** No
24. Ha tenido relaciones sexuales con **G** Hombres **G** Mujeres **G** Hombre y Mujer **G** Nadie **G** Varias personas

PARA MUJERES SOLAMENTE: Fecha de su última regal (menstruación) ____/____/____

TO BE COMPLETED BY THE NURSE:

G Discussed positive PPD (H-1816) given
G Chest X-ray appointment:
G Referred **G** Given, Date ____/____/____
G Informational letter (H-2933) given

Nurse's Signature:
Date: ____/____/____

PATIENT IDENTIFICATION

NAME:

BIRTHDATE:

RECORD #:

COUNTY OF LOS ANGELES

DEPARTMENT OF HEALTH SERVICES

PUBLIC HEALTH PROGRAMS

TUBERCULOSIS PATIENT INITIAL HISTORY AND PHYSICAL

CHIEF PRESENTING COMPLAINT: *(INCLUDE DURATION)*

PRESENT ILLNESS

	NO	YES	DETAILS: *(ONSET, COURSE, PROBABLE CAUSE)*
1. COUGH	9	9	
2. EXPECTORATION	9	9	
3. WEIGHT LOSS	9	9	
4. DYSPNEA	9	9	
5. CHEST PAIN	9	9	
6. HEMOPTYSIS	9	9	
7. WHEEZE	9	9	
8. FEVER	9	9	
9. FATIGUE	9	9	
10. NIGHT SWEATS	9	9	

CURRENT TB MEDICATIONS:

ALL OTHER CURRENT MEDICATIONS:

PAST MEDICAL HISTORY

TB: Previous History of TB 9 No 9 Yes 9 Pulmonary 9 Extra Pulmonary Previous Treatment for TB? 9No 9 Yes

SPECIFY THERAPY DATES AND DRUGS

DATES AND LOCATION

Previous Hospitalizations for TB? 9 No 9Yes

DRUGS? TYPE OF REACTIONS?

Any TB Drug Reactions? 9 No 9 Yes *(Describe):*

DATE

OTHER: Other Illnesses and Diagnoses:

PLEASE SPECIFY

Inhalation Exposure?

DATE AND PLACE

Hospitalization and Operations:

Blood Transfusions? 9 No 9 Yes If yes, Year

INJURIES:

ALLERGIES AND DRUG REACTIONS: *(DESCRIBE)*

FAMILY / SOCIAL HISTORY

OCCUPATION:

MARRIED: 9 No 9 Yes 9 Never 9 Div.

SPOUSE'S NAME:

SPOUSE/CHILDREN *(AGES AND HEALTH)*

LIVING WITH PATIENT? 9 No 9 Yes

RELATIONSHIP:

TB: SOURCE: Family? 9 No 9 Yes 9 Other 9 Unk

OTHER FAMILIAL DISEASE TENDENCIES:

TYPE DATE OTHER DATE

DRUG ABUSE: 9 No 9 Yes 9 IV Alcohol: 9 No 9 Yes Tobacco:

Sexual Activity: 9 Male 9 Female 9 Both 9 None Multiple Partners: 9 No 9 Yes

DATE

HIV Infection: Test Done: 9 No 9 Yes Result: 9 Pos 9 Neg

REVIEW OF SYSTEMS *(Check If Problems Present)*

9 1. Head and Neck	9 4. Respiratory	9 7. Diabetes	9 10. Kidney Disease
9 2. Eye Disorder	9 5. Musculo/Skel	9 8. Gastro-Intestinal	9 11. G.U./Gyn
9 3. Ear Disorder	9 6. heart Disease	9 9. Liver Disease	9 12. CNS

REMARKS:

PATIENT IDENTIFICATION

SIGNATURES:

X

9 RN

9 MD

DATE / /

TUBERCULOSIS PATIENT INITIAL HISTORY AND PHYSICAL

COUNTY OF LOS ANGELES

DEPARTMENT OF HEALTH SERVICES

PUBLIC HEALTH PROGRAMS

TUBERCULOSIS PATIENT INITIAL HISTORY AND PHYSICAL -- PART 2

PHYSICAL EXAM

HEIGHT	WEIGHT	TEMPERATURE	PULSE	BLOOD PRESSURE

GENERAL APPEARANCE *(MENTAL STATUS, GAIT, ETC.)*

SKIN

EENT

CARDIO-VASCULAR

RESPIRATORY

ABDOMEN

MUSCULO/SKELETAL

NEUROLOGICAL

GENITALS/RECTUM

ASSESSMENT

9 **TB:** _____

9 **OTHER:** _____

COMPLIANCE ASSESSMENT

TO BE CONSIDERED IN ASSESSING THE APPROPRIATE TREATMENT REGIMEN:

	NO	YES
HISTORY OF TREATMENT FAILURE	9	9
OVERT UN-COOPERATIVE BEHAVIOR	9	9
ALCOHOLISM	9	9
DRUG ABUSE	9	9
NEURO. PSYCH. PROBLEMS	9	9

	NO	YES
COMMUNICATION/LANGUAGE PROBLEMS	9	9
TRANSPORTATION PROBLEMS	9	9
TEENAGER OR ELDERLY PATIENT	9	9
OTHER PROBLEMS RELATED TO NON-COMPLIANCE	9	9

If Yes: _____

PLANS

SUBMIT REGISTRATION H-290 TO TUBERCULOSIS REGISTRY.

9 **OTHER:**

_____

_____

_____

_____

_____

SIGNATURES:

X

9 RN

9 MD

DATE

/ /

PATIENT IDENTIFICATION

NAME

BIRTHDATE

CHART NUMBER

CENTER

TUBERCULOSIS PATIENT INITIAL HISTORY AND PHYSICAL

PART 2

H2546

TUBERCULOSIS SKIN TEST REPORT (NEGATIVE)

Name _____
Street _____ City _____
Birthdate _____ Health Center _____

THIS REPORT IS IMPORTANT-KEEP IT!

YOUR MANTOUX TUBERCULIN TEST ON __/__/__
WAS _____ mm of induration to 5 TU PPD. This is considered a Negative test.

This means there were no signs of TB germs in your body at the time of this test. However, a negative test does not always rule out tuberculosis infection or disease particularly in special circumstances, such as: abnormal immunity (including infection with the AIDS virus), recent exposure to an infectious person with TB, or sickness from TB itself. If you think you have any of these conditions now or in the future, you should consult with a doctor or the Health Center. A repeat tuberculin test may be indicated.

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
H-2947 76T806 (12/92)

(SPANISH) (NEGATIVE)

(TUBERCULOSIS SKIN TEST REPORT)
PRUEBA DE PIEL PARA TUBERCULOSIS

NOMBRE _____
DIRECCION _____
FECHA DE NACIMIENTO _____
CENTRO DE SALUD _____

ESTO DATOS SON IMPORTANTES. CONSERVELOS.

SU PRUEBA (MANTOUX) DE LA TUBERCULINA DEL DIA ____/____/____ FUE _____ mm de Enduración a 5 TU DPP. Esto significa una prueba Negative.

Esto quiere decir que en èste momento no hay gèrmenes de la Tuberculosis en su cuerpo. Un resultado negativo no siempre quiere decir que no hay infección de la Tuberculosis. Ciertas condiciones como el SIDA o el cancer pueden afectar la reación de la prueba. En el futuro usted debe consultar a su mèdico para una prueba nueva si tiene contacto con una persona con la Tuberculosis contagiosa o si usted persona con la Tuberculosis contagiosa o si usted tiene sìntomas de la enfermedad activa.

CONDADO DE LOS ANGELES DEPARTAMENTO DE SERVICIOS DE SALUD
H-2947 76T806 (12/92)

COUNTY OF LOS ANGELES

DEPARTMENT OF HEALTH SERVICES

SPECIAL TUBERCULOSIS DRUG REQUEST

For Pharmacy Use:

NOT REQUIRED FOR ROUTINE TB DRUGS, I.E. ISONIAZID, RIFAMPIN, RIFAMATE, PYRAZINAMIDE, ETHAMBUTOL

ORDERING PHYSICIAN

DATE: _____ NAME OF DRUG: _____

SIG (DIRECTION): _____

PATIENT'S DIAGNOSIS: _____

TYPE REQUEST:

- ☐ Request to use drug to treat MDR-TB.
- ☐ Request to use second-line TB drug because the patient could not tolerate preferred drugs.
- ☐ Other: _____

STATE OTHER REASON FOR REQUEST: _____

_____

_____

Facility Name: _____

Signature of Physician ordering drug: _____

(FAX TO TB CONTROL AND SEND APPROVED FORM TO PHARMACY WITH PRESCRIPTION)

TB CONTROL

☐ This drug is approved for use in the patient for _____ months.

Approved by: _____ Title: _____ Date: _____

(SIGNATURE OF TB CONTROL PROGRAM PHYSICIAN)

☐ This drug is **not** approved for use in this patient because: _____

_____

Reviewed, but not approved by: _____ Title: _____ Date: _____

(SIGNATURE OF TB CONTROL PROGRAM PHYSICIAN)

PHARMACY

Received and reviewed by: _____ at _____ on _____

(PHARMACIST) (FACILITY) (DATE)

PLEASE FILE A COPY OF THE COMPLETED FORM IN THE PATIENT'S CHART

SPECIAL TUBERCULOSIS DRUG REQUEST

PATIENT IDENTIFICATION

PATIENT NAME:

PF #:

DOB:

CLINIC: _____

H3003

Los Angeles County TBC Program Standards, Policies, and Procedures

Appendix F. Targeted Skin Testing and Treatment of Latent TB Infection in Adults and Children

County of Los Angeles Department of Health Services
Tuberculosis Control Program Standards

Targeted Skin Testing and Treatment of Latent Tuberculosis Infection in Adults and Children

The following official LAC standards are based on CDC/ATS, California Tuberculosis Controllers Association, and* California *Department of Health Services, Tuberculosis Control Branch official guidelines

Recently published guidelines from the American Thoracic Society and Centers for Disease Control and Prevention have recommended a change in nomenclature. The terms "chemoprophylaxis" and "preventive therapy" will no longer be used. Instead, the phrase ?treatment of latent tuberculosis infection (LTBI) is recommended because it more accurately describes the intended intervention. This change in nomenclature will hopefully promote greater understanding of the concept for both patients and providers, resulting in more widespread use of this important tuberculosis (TB) control strategy. **(**see **Appendix 4 for Definitions and Abbreviations)**

Targeted TB Skin Testing

Targeted tuberculin skin testing for LTBI aims to identify individuals at high risk for TB who would benefit from treatment of LTBI. Persons for whom treatment of LTBI is indicated in this document are the same categories of persons who should be targeted for tuberculosis skin testing. Skin testing low risk populations will result in unnecessary testing and treatment because of false-positive test results.

High risk for developing TB disease is defined as:

(1) recent infection with *Mycobacterium tuberculosis*,
(2) the presence of clinical conditions that are associated with an increased risk of progression of LTBI to active TB (see **Appendix 1: Tables 1 and 2**) or
(3) increased morbidity if progression to TB disease occurs.

Definition of a positive tuberculin skin test

Previous vaccination with BCG is not a contraindication to tuberculin skin testing. Because most persons who have received prior BCG vaccination are from high prevalence areas of the world, previous vaccination should be ignored when interpreting a tuberculin skin test.

I $\geq$ 5 mm of induration*****

A. Persons known or suspected to have HIV infection.

B. Recent contacts to an active case of pulmonary or laryngeal TB.

C. Persons with an abnormal chest radiograph consistent with TB disease.

D. Immunosuppressed individuals (See page 3 **Indications for Treatment of LTBI -TB2 and TB4**, VI-E)

***Note:** The California Department of Corrections considers all inmates high risk, and therefore treats for latent infection all inmates $5mm.

II. $\geq$ 10 mm of induration

All persons except those in I. above

Note: The CDC recommends using a 15 mm cutoff for low risk reactors. However, in California, public health departments do not recognize this cutoff because California is a high incidence state and the prevalence of nontuberculous mycobacterial infections is lower than other regions of the United States.

III. Tuberculin skin test conversion

TST conversion is defined as an increase of at least 10 mm of induration from < 10 mm to $\geq$ 10 mm within two years from a documented negative to positive TST.

Example: a TST of 4 mm that increases in size to 14 mm or more in induration would be considered a skin test conversion.

In some cases, the exact size (in mm) of the previous tuberculin skin test may not be known. In such cases, skin test conversion is defined as a change from a negative to positive tuberculin skin test within a 2-year period.

Evaluation for TB Disease - Symptom review and chest radiography

I. All persons who have a positive tuberculin skin test should undergo symptom review and have a chest radiograph.

A. If the radiograph is normal and the patient is asymptomatic, treatment of LTBI may be indicated (see **Appendix 2**).

B. If the radiograph is normal but the patient has a clinical presentation consistent with tuberculosis, further work-up is indicated and treatment of LTBI should be delayed until active tuberculosis has been ruled out.

II. Bacteriologic studies should be obtained for all persons with an abnormal chest radiograph consistent with tuberculosis even when the radiographic abnormalities appear stable. If bacteriologic studies are obtained, treatment of LTBI should not be initiated until final culture results are available.

Definition of persons eligible for treatment of LTBI (TB2 and TB4)

The following classes of persons are eligible for treatment of LTBI if they have not received a prior course of treatment for active TB or LTBI. In some cases, individuals may require another course of therapy if they have been exposed as a close contact to an infectious case of TB and have HIV/AIDS or are otherwise immunosuppressed.

I. TB2 - Tuberculosis infection, no disease:
Positive reaction to tuberculin skin test, negative bacteriologic studies (if done) and no clinical and/or radiographic evidence of tuberculosis.

II. TB4 - Tuberculosis, no current disease:

A. History of previous episode(s) of tuberculosis, or
B. Abnormal*, but stable, radiographic findings in a person with a positive tuberculin skin test, negative bacteriologic studies, and no clinical and/or radiographic evidence of current disease.

*Abnormal refers to radiographs with parenchymal abnormalities consistent with TB. It does not refer to isolated calcified granulomas or apical pleural thickening

Indications for Treatment of LTBI - TB2 and TB4 (See **Appendix 2**)

Persons in the following categories including pregnant women, except when otherwise noted, should be treated if their tuberculin skin test is positive and they have not previously completed a course of therapy for tuberculosis or LTBI.

I. Persons known or suspected to have HIV infection, regardless of age.

II. Persons with an abnormal chest radiograph suggestive of tuberculosis and classified as a TB 4, regardless of age.

III. Recent close contacts to active pulmonary or laryngeal TB, regardless of age.

IV. Tuberculin skin test converters, regardless of age.

V. Persons from countries with high TB rates but no other risk factors, except for pregnant women.

A. Recent arrivals to the USA (arrived within the past 3 years or less), regardless of age.

B. Remote arrivals to the USA (resided continuously in the USA for more than 3 years), and are **NOT OVER 35 YEARS OF AGE.**

VI. Persons with the following conditions that have been associated with an increased risk of TB (See **Appendix 1, Tables 1 and 2**), regardless of age:

A. Injection drug use, regardless of HIV serostatus

B. Diabetes mellitus (especially insulin-dependent)

C. Silicosis

D. End-stage renal disease

E. Chronic immunosuppression

1. Transplant recipients

2. Prolonged corticosteroid therapy (15 mg/day for 1mo)

3. Other immunosuppressive therapy

F. Hematological and reticuloendothelial diseases

G. Malnutrition and clinical situations associated with rapid weight loss

1. Cancer of the head and neck

2. Intestinal bypass or gastrectomy

3. Chronic malabsorption

4. Low body weight (>10% below ideal body weight)

VII. Children and adolescents < 18 years of age exposed to adults with any of the above high risk characteristics, except if pregnant.

VIII. Residents and employees of the following high risk congregate settings: prison and jails, nursing homes, and other long-term facilities for the elderly, residential facilities for patients with AIDS, and homeless shelters; other homeless persons; employees of hospitals and other health care facilities **regardless of age.**

IX. Persons with a positive tuberculin skin test not in the above categories who abuse alcohol, cocaine, and intravenously injected drugs who are tested and have LTBI **regardless of age.**

X. All other persons who are tested and have LTBI and are **NOT OVER 35 YEARS OF AGE**, except for pregnant women.

Indications for Treatment of LTBI ? **TB1 (TB exposure but negative skin test)** (See **Appendix 2**)

Close Contacts

In close contacts to infectious cases, the initial tuberculin skin test may be negative despite underlying infection with *M. tuberculosis* if the TST is placed before the contact has mounted an immune response to the tuberculin antigen. It takes 2-12 weeks after infection with *M. tuberculosis* to develop a positive TST reaction.

Close contacts (TB1) to an infectious case, who have a tuberculin skin test < 5 mm, should have a chest radiograph obtained, and once TB disease is excluded, should be started on therapy for LTBI regardless of age **IF:**

I. Circumstances suggest a high probability of infection. For example, evaluation of other contacts with a similar degree of exposure demonstrates a high prevalence of infection, documented converters, or secondary cases.

II. The contact is a child under 5 years of age, or is infected with HIV, or is otherwise immune-compromised.

For those individuals who are started on therapy with a TST < 5 mm, a repeat tuberculin skin test should be performed 10 to 12 weeks after contact with the infectious case has been broken, or the index case becomes non-infectious, to determine if the skin test has become positive. Decision on continuing therapy should be made once the result of repeat skin testing is available.

Note: In HIV infected contacts; treatment should be completed, regardless of the result of the repeat skin test.

Treatment Regimens for LTBI

(See **Appendix 3,** for intervals and duration, drug dosages, and treatment completion criteria)

The standard regimen is isoniazid (INH) as a single drug.

I. INH alone:

A. 6 month regimen (minimum) for immune-competent adults. 9 month regimen if twice-weekly

B. 9 month regimen for children and adolescents (up to age 16 - 18)

C. 9 month regimen for HIV-infected persons or persons suspected of having HIV infection

D. 9 month regimen for TB 4 (See also **IV** below)

Alternative regimens for special circumstances.

II. RIF and PZA for 2 months:

Approval from the TB control Program is required before using this regimen.

This regimen is not to be used except in HIV infected persons who are at very high risk for tuberculosis and unlikely to take 6 - 9 months of INH. Particular caution is necessary in patients taking other medications associated with liver injury, and those with a history of alcoholism even if alcohol use is discontinued during treatment. Rifampin/pyrazinamide is contra-indicated for persons with underlying liver disease or for those who have had isoniazid-associated liver injury. Rifampin/pyrazinamide must be given by directly observed therapy (DOT).

III. Rifampin alone for 6 months:

treat persons exposed to cases with mono-resistance to INH or intolerance to INH with 6 months of RIF. A 2-month regimen of RIF and PZA is not recommended.

IV. INH and RIF (Rifamate) or RIF alone for 4 months for TB 4.

Although there have been no randomized studies to document the efficacy of this regimen in persons classified as a TB 4, there is a great deal of experience with this regimen in the public health sector. Give this regimen to TB suspects who have been started on treatment for TB but are later determined to be TB 4. The time for treatment as a suspect case should be included in the total 4 months recommended for treating LTBI.

V. Rifabutin may be substituted for rifampin in the above regimens in situations where rifampin cannot be given such as in HIV-infected persons taking certain protease inhibitors or non-nucleoside reverse transcriptase inhibitors. Dosage adjustments may, however, be necessary. TB Control should be consulted before making this substitution.

VI. Regimens for Contacts to Drug Resistant Cases

A. INH mono-resistant source case

Refer to III above.

B. Multidrug resistant source case

Persons exposed to a multidrug resistant case of TB require consultation with TB Control for expert advice concerning appropriate treatment.

Daily vs. Intermittent Dosing

INH may be given daily or twice weekly when treating LTBI. When INH is given twice weekly it must be given by DOT and the length of therapy should be a minimum of 9 months.

Intermittent therapy should not be used with a 2 month RIF and PZA regimen except under an approved protocol from TBC**.**

Directly Observed Therapy

Directly observed therapy (DOT) for LTBI should be used in circumstances where the risk of nonadherence is judged to be high, the risk of progression to active disease is high, or when the treatment regimens are given intermittently. New short course regimens and intermittent dosing may make DOT more feasible.

Monitoring for Drug Toxicity and Adherence

I. Baseline Evaluation

A. Baseline laboratory testing is not routinely indicated for all persons at the start of treatment for LTBI. Such testing may, however, be considered on an individual basis. Persons with the following high-risk characteristics are required to have baseline laboratory testing:

1. HIV infection
2. History of, or at risk of, chronic liver disease
3. Alcoholism
4. Taking other hepatotoxic medications
5. All persons over 35 years of age
6. Pregnant women and those in the immediate post-partum period (3 – 6 months)

B. The baseline laboratory tests will depend on which drug regimen is being used.

1. Isoniazid-containing regimen - In persons taking isoniazid, baseline measurements of serum AST or ALT and bilirubin are indicated.
2. Rifampin (or rifabutin) -containing regimen - In persons taking a rifamycin, baseline measurements of complete blood count and platelets are recommended, in addition to liver function tests.
3. Pyrazinamide-containing regimen - same as rifampin-containing regimen. A baseline uric acid level is not necessary unless the patient has a history of gout.

II. Evaluation During Treatment

A. Clinical Evaluation - Patients being treated for LTBI should receive a clinical evaluation at least monthly, regardless of the regimen used. The evaluation should include careful in person questioning of the patient about side effects associated with the medications, particularly hepatitis (e.g., anorexia, malaise, abdominal pain, fever, nausea, vomiting, dark urine, icterus). In addition, the patient should be asked about adherence and educated about the possible side effects of the medications.

No more than a one-month supply of medication is to be dispensed at a time.

B. Rifampin and pyrazinamide containing regimens may require more frequent monitoring. Liver function studies including a serum aminotransferase (AT) and bilirubin must be done at baseline, weeks 2, 4, and 6 of therapy. Asymptomatic serum AT increase are expected but do not require that treatment be stopped unless the AT level is greater than three times the upper limit of normal range in which case the regimen should not be resumed. Treatment should also be stopped and not resumed if any of the following findings occur: AT greater than normal range accompanied by symptoms of hepatitis, or a serum bilirubin greater than normal whether the symptoms are present or not. Rifampin/pyrazinamide must be given by DOT.

C. Routine laboratory monitoring during treatment of LTBI is indicated for those whose baseline liver function are abnormal, for persons at high risk of hepatic disease, or persons with symptoms of hepatitis. The frequency of this monitoring will vary depending on the person's risk of liver disease and the severity of the liver function test abnormalities.

Note: Pregnant women and those in the immediate post-partum period (within 3 - 6 months of delivery) ***must*** have repeat liver function tests measured monthly.

III. When To Stop Medications Due to Drug-induced Hepatitis

Medications should be stopped if the transaminase levels exceed **3** times the upper limit of normal. Medication should be held pending further clinical and laboratory evaluation**.**

Completion of Therapy

Completion of therapy should be based on the total number of doses administered not duration of therapy. If treatment is interrupted the recommended number of doses of the regimen should be provided within a certain maximum time period (See **Appendix 3**). The entire regimen should be restarted if interruptions were frequent or prolonged enough to preclude completion of doses in the time frames specified. When therapy is restarted after an interruption of more than 2 months, a medical examination to exclude active disease is indicated.

The standard in LAC when closing a patient being treated for LTBI to the TB Registry is to include the total number of medication doses received over a specific period of time.

Note: No set of standards can cover all individual treatment situations that can and will arise. Thus, when questions on individual situations not covered by these standards do arise, consult with LAC TB Control Program.

These standards have been approved and are in effect as of February 2001 and revised October 2001:

Signed:

[Signature on File]

Paul T. Davidson, M. D. (Date)
Director, Tuberculosis Control

[Signature on File]

James G. Haughton, M. D., MPH (Date)
Medical Director, Public Health

[Signature on File]

Shirley Fannin, M. D. (Date)
Director, Health Protection and
Disease Control, Communicable Disease Control

VII. Suggested Readings

1. American Academy of Pediatrics. 2000. Tuberculosis. *In* Red Book: Report of the Committee on Infectious Diseases, 25th ed. American Academy of Pediatrics, Elk Grove Village IL.

2. American Thoracic Society / Centers for Disease Control and Prevention. Treatment of tuberculosis and tuberculosis infection in adults and children. Am J Respir Crit Care Med 1994; 149: 1359-1374.

3. American Thoracic Society / Centers for Disease Control and Prevention. Targeted skin testing and treatment of latent tuberculosis infection. Am J Respir Crit Care Med. 2000 161: S221-S247.

4. American Thoracic Society / Centers for Disease Control and Prevention. Diagnostic standards and classification of tuberculosis in adults and children. Am J Respir Crit Care Med 2000; 161:1376-1395.

5. Centers for Disease Control and Prevention. Notice to readers. Updated guidelines for the use of rifabutin or rifampin for the treatment and prevention of tuberculosis among HIV-infected patients taking protease inhibitors or nonnucleoside reverse transcriptase inhibitors. MMWR 2000; 49:185-189.

6. Zuber PLF, McKenna MT, Binkin NJ, Onorato IM, Castro KG. Long-term risk of tuberculosis among foreign-born persons in the United States. J.A.M.A. 1997; 278:304-307.

Appendix 1

High Risk Populations

Table 1. Incidence of Active TB in Persons with a Positive TST by Selected Factors

Risk Factor	TB Cases/1000 person-years
Infection > 2 years past	**1.6**
Infection < 1 year past	**12.9**
HIV Infection	**35.0-162.0**
Injection Drug Use	
HIV seropositive	**76.0**
HIV seronegative or unknown	**10.0**
Silicosis	**68**
Radiographic findings consistent with old TB	**2.0-13.6**

Source: American Thoracic Society/Centers for Disease Control and Prevention, 2000

Table 2. Certain medical conditions associated with an increased risk of developing TB

Medical Condition	Relative Risk
Solid organ transplant	
Renal	**37**
Cardiac	**20-74**
Jejunoileal bypass	**27-63**
Silicosis	**30**
Chronic Renal Failure/Hemodialysis	**10.0-25.3**
Carcinoma of head and neck	**16**
Gastrectomy	**2-5**
Diabetes mellitus	**2.0-4.1**

Source: American Thoracic Society/Centers for Disease Control and Prevention, 2000

Appendix 2

CANDIDATES FOR TREATMENT OF LATENT TUBERCULOSIS INFECTION (LTBI) (adapted from Charles P. Felton National TB Center)			
Category of person tested	TST <5 mm	TST ≥ 5 mm	TST ≥ 10 mm
(1) Recent Contact to TB Case[1]			
1. Child <5 years and recent contact[2]	TREAT	TREAT	TREAT
2. HIV-infected and recent contact[2]	TREAT	TREAT	TREAT
3. Immunosuppressed and recent contact[2]	TREAT	TREAT	TREAT
4. Other recent contact of TB case	Do Not Treat	TREAT	TREAT
(2) No Recent Contact to TB Case			
1. Fibrotic changes on chest X-ray[3]	Do Not Treat	TREAT	TREAT
2. HIV-infected	Do Not Treat	TREAT	TREAT
3. Injection drug user with unknown HIV status	Do Not Treat	TREAT	TREAT
4. Other immunosuppressed persons[4]	Do Not Treat	TREAT	TREAT
5. Foreign-born persons from endemic country[5]	Do Not Treat	Do Not Treat	TREAT
6. Injection drug user known to be HIV negative	Do Not Treat	Do Not Treat	TREAT
7. Resident/Employee institutional setting[6]	Do Not Treat	Do Not Treat	TREAT
8. Mycobacteria lab personnel	Do Not Treat	Do Not Treat	TREAT
9. High-Risk clinical conditions[7]	Do Not Treat	Do Not Treat	TREAT
10. Children < 18 years of age exposed to adults at high risk	Do Not Treat	Do Not Treat	TREAT
11. Other persons depending on local epidemiology and resources	Do Not Treat	Do Not Treat	TREAT

Note: If a person meets more than one criteria for treatment, the lower TST cut point for therapy should be used (i.e. an immigrant from a TB endemic country who has fibrotic changes on chest radiograph should be treated if the TST is ≥5 mm induration

[1]Recent contacts to active case of pulmonary or laryngeal TB.

[2]Recent contacts who are initially TST-negative should have a TST repeated 8-12 weeks after last exposure to TB case (see Text). Treatment can usually be discontinued after negative second TST in children. HIV infected adults and children, however, should receive full course of therapy regardless of TST result.

[3]Abnormal, stable, radiographic findings (parenchymal abnormalities consistent with TB, not isolated calcified granuloma or apical pleural thickening). Bacteriologic studies should be obtained for all persons with an abnormal chest radiograph consistent with TB even when the radiographic abnormalities appear stable. When bacteriologic studies are obtained, treatment of LTBI should not be initiated until final culture results are available.

[4]Transplant recipients, prolonged corticosteroid therapy (≥15 mg/day for ≥1 month), other immunosuppressive therapy

[5] Persons who have resided in the U.S. for over 3 years should receive treatment if they are not over 35 years of age.

[6]Residents and employees of the following high risk congregate settings: prisons and jails*, nursing homes and other long-term facilities for the elderly, residential facilities for patients with AIDS, homeless shelters; other homeless persons; employees of hospitals and health care facilities.

*The California Department of Corrections considers all inmates high risk, and therefore treats for latent infection all inmates ≥5mm.

[7]Silicosis, diabetes mellitus, chronic renal failure, some hematologic disorders (e.g. leukemias and lymphomas), other specific malignancies (e.g. carcinoma of the head and neck or lung), weight loss of ≥10% of ideal body weight, gastrectomy, jejunoileal bypass.

Pregnancy: Treat during pregnancy if either HIV-infected or recent *M.tb* infection.

Appendix 3

Recommended Drug Treatment Regimens For Treatment of LTBI

Drug	Interval & Duration	Adult Dose (max)	Pediatric Dose (max)	Criteria for Completion	Monitoring	Comments
INH	Daily for 6 months	5 mg/kg (300 mg)		180 doses within 9 months	Clinical monitoring monthly. Liver function tests[1] at baseline in selected cases[2] and repeat measurements if baseline tests are abnormal, patient is at high risk for adverse reactions, or patient has symptoms of hepatitis.	Preferred regimen for all immune-competent adults.
	Twice-weekly for 9 months	15 mg/kg (900 mg)		76 doses within 12 months		Alternate regimen for adults. DOT must be used with twice-weekly dosing
INH	Daily for 9 months	5 mg/kg (300 mg)	10-20 mg/kg (300 mg)	270 doses within 12 months		Preferred for children and HIV-infected adults. In HIV-infected patients, INH may be administered concurrently with NRTIs, protease inhibitors, or NNRTIs
	Twice-weekly for 9 months	15 mg/kg (900 mg)	20-40 mg/kg (900 mg)	76 doses within 12 months		Alternate regimen for children and HIV-infected. DOT must be used with twice-weekly dosing
RIF plus PZA	Daily for 2 months	RIF 10mg/kg (600 mg) PZA 15-20 mg/kg (2.0 g)	nr	60 doses within 3 months	Clinical monitoring at baseline, weeks 2, 4, and 6. Liver function tests[1] at baseline in selected cases[2] and repeat measurements if baseline results are abnormal or patient has symptoms of adverse reactions	Alternate regimen for adults unlikely to take 6-9 mos of INH. In HIV-infected patients, certain protease inhibitors or NNRTIs should not be administered concurrently with RIF; an alternative is rifabutin 300 mg daily.
RIF	Daily for 6 months	10 mg/kg (600 mg)	10-20 mg/kg (600 mg)	120 doses within 9 months	Clinical monthly monitoring Complete blood count, platelets, and liver function tests[1] at baseline in selected cases[2] and repeated measurements if baseline results are abnormal or patient has symptoms of adverse reactions	For persons exposed to INH resistant, RIF susceptible TB and those who cannot tolerate INH.
INH plus RIF	Daily for 4 months	INH 5 mg/kg (300 mg) RIF 10mg/kg (600 mg)		120 doses within 6 months	See INH and RIF	Alternate regimen for TB Class 4 (history of previous TB or abnormal but stable radiographic findings without evidence of active TB.)

Abbreviations: INH = isoniazid, RIF = rifampin, PZA = pyrazinamide, NRTIs = nucleoside reverse transcriptase inhibitors, NNRTIs = non-nucleoside reverse transcriptase inhibitors, DOT = directly observed therapy, nr = not recommended

Pregnancy: INH regimens preferred for pregnant women. Some experts would use RIF plus PZA as an alternate regimen in HIV-infected pregnant women. PZA should be avoided during the first trimester.

MDR-TB exposure: For persons who are likely to be infected with INH and RIF (multi-drug) resistant TB and at high risk of reactivation, PZA and ethambutol or PZA and a fluoroquinolone are recommended depending on the sensitivities of the M. tb isolate. (Consult expert.)

[1] AST or ALT and serum bilirubin

[2] HIV Infection, history of liver disease, alcoholism, and pregnancy

Appendix 4

Definitions and Abbreviations

1. LTBI — Latent tuberculosis infection

2. TB1 — Tuberculosis exposure--no evidence of infection
   - History of exposure
   - Negative reaction to tuberculin skin test

3. TB2 — Tuberculosis infection--no disease
   - Positive reaction to tuberculin skin test
   - Negative bacteriologic studies (if done)
   - No clinical, bacteriological, or radiographic evidence of current disease

4. TB3 — Tuberculosis disease--clinically active
   - Mycobacterium tuberculosis cultured (if done)
   - Clinical, bacteriological, or radiographic evidence of current disease

5. TB4 — Tuberculosis--not clinically active
   - History of episode(s) of tuberculosis, **or**
   - Abnormal but stable radiographic findings
   - Positive reaction to the tuberculin skin test
   - Negative bacteriologic studies (if done), **and**
   - No clinical or radiographic evidence of current disease

6. TB5 — Tuberculosis disease suspected
   - Diagnosis pending

7. CDC — Centers for Disease Control and Prevention

8. TST — Tuberculin skin test

9. LAC — Los Angeles County

10. DHS — Department of Health Services

11. TBC — Tuberculosis Control Program

12. DOT — Directly observed therapy

13. ATS — American Thoracic Society

Appendix G. Directly Observed Therapy Standards

Los Angeles County • Department of Health Services
Tuberculosis Control Program

Medical Standards
Directly Observed Therapy (DOT)

The standard of care for TB treatment is DOT. DOT ensures that patients complete an adequate course of TB treatment. **All patients with suspected TB (Class V) and known, active TB disease (Class III) must be started on DOT at the initiation of therapy**. DOT is defined as delivery of every dose of medication by a health care worker (HCW) who observes and documents that the patient actually ingest or is injected with the medication. Delivery alone to the patient without observation and documentation is not DOT. Patient circumstances determine whether DOT is administered in the hospital, during incarceration, at the Chest Clinic or at another location such as the patient's home or work location. In Los Angeles County, DOT is provided through trained Community Workers, PHNs and Clinic nurses. (Note: Field delivery of DOT in Los Angles County must follow the Los Angeles DOT Protocol.)

Patients receiving DOT should be on intermittent therapy when clinically indicated. Exceptions to this include daily therapy requirements during the initial treatment period and MDR-TB. If the patient is receiving daily DOT, oral medications should be supplied for weekend and holiday self administered dosing. Only when the patient has been observed for an extended time period establishing compliance and no current or new risk factors for non-compliance exist, should any consideration be given to self medicate.

Note: If it is decided not to place the patient on DOT, the reasons must be documented in the medical record

THE FOLLOWING RISK FACTORS ARE CONSIDERED **ABSOLUTE INDICATORS** FOR CONTINUED DOT.

- HIV seropositive
- History of previous tuberculosis disease
- Homelessness
- History of incarceration
- Psychiatric disorder/Cognitive dysfunction
- Current or past history of substance abuse
- Past history of non-adherence to medical regimen
- Failure to respond to therapy (i.e.: persistent or recurrent positivity on smear and culture)
- Resistance to one or more anti-TB drugs

THE FOLLOWING RISK FACTORS ARE CONSIDERED **RELATIVE INDICATORS** FOR CONTINUED DOT:

- Congregate living
- Age:
  - Under 18 years (children and adolescents)
  - Elderly
- Difficulty or nonacceptance of TB diagnosis
- Lack of understanding of the TB diagnosis
- Recent immigration

If multiple indicators are present, DOT should be continued.

PROCEDURES FOR MISSED **DOT** DOSAGES

Triggers for Public Health Nursing Supervisor (PHNS) or PHN Case Manager Notification:

- Daily DOT: Two missed doses in any 7 day period
- Intermittent DOT: One missed dose
- MDR-TB One missed dose (TB Control MDR unit must be notified)

Make-up time parameters:

- Daily DOT: Two or more missed doses per 7 day period will result in a one to one weekly extension to duration of therapy
- Twice weekly DOT: One or more missed doses per week will result in a one to one weekly extension to duration of therapy
- Thrice weekly DOT: Two or more missed doses per week will result in a one to one weekly extension to duration of therapy
- MDR DOT: **Must consult with TB Control MDR unit**

Missed Clinic Visits: Any patient on DOT who misses a scheduled clinic appointment must be seen in clinic within one week for assessment. Any consecutive missed appointments will result in the withholding of DOT and clinician assessment of the necessary course of action (e.g.: issuing of a legal order for examination).

ACCEPTABLE INTERMITTENT THERAPY SCHEDULES FOR PATIENTS WITH DRUG SENSITIVE ISOLATES

The clinician shall determine the appropriate regimen based upon individual patient assessment and needs. Therapy may need to be prolonged for HIV seropositive patients.

ADULT DOSING SCHEDULE ✻

DRUG	DAILY	2X WEEKLY	3X WEEKLY
Isonaizid (I)	300mg	15mg/kg Max900mg	15mg/kg Max 900mg
Rifampin (R)	600mg	600mg	600mg
Pyrazinamide (p)	30mg/kg Max 2g	70mg/kg Max 4g	70mg/kg Max 3g
Ethambutol (E)	15mg/kg	50mg/kg	30mg/kg

1. IRPE daily for 8 weeks, IR 2X weekly for 16 weeks.
2. IRPE daily for 2 weeks, IRPE 2x weekly for 6 weeks, IR 2X weekly for 16 weeks
3. IRPE 3X weekly for six months.

I and R are given in the form of Rifamate®
I, R, and P can also be given as Rifater®

✻Child dosing schedule-call TB Control at 213-744-6160

Noted and Approved:

[Signature on File}

_____

Paul T. Davidson, M.D., Director Dated

Los Angeles County Tuberculosis Control Program

Standards

Directly Observed Therapy: Tuberculosis Patient SELF-MEDICATION

STANDARD:

The PHN retains responsibility for the case management of the TB patient. The OVERALL supervision of the DOT process is the Public Health Nurse Supervisor.

Prior to the Community Worker (CW) assuming responsibility for direct observation of the patient's self-administered treatment, the following must be completed and documented.

1. Both a primary CW and back-up designee (PHN or CW) must be identified for each patient receiving directly observed therapy (DOT) and directly observed preventive therapy (DOPT).

2. The CW must satisfactorily complete one day of Tuberculosis Training provided through Los Angeles County Tuberculosis Control. The Los Angeles County Tuberculosis Control Program DOT standard and field skills training will constitute no less than 4 hours of this training. Upon completion of this training, the CW must demonstrate threshold basic tuberculosis knowledge through written assessment and skill set levels as described below.

    a) The CW must be capable of leading a patient through self-assessment for signs and symptoms of tuberculosis and anti-TB medication side effects.

    b) The CW must be capable of observing and appropriately documenting a patient for signs and symptoms of tuberculosis and anti-TB medication side effects.

    c) The CW must be capable of observing and documenting any changes in a patient's health habits, psychosocial status, socio-economic, household composition etc.

    d) The CW must report to the PHN, any patient signs and symptoms even if the patient denies or fails to recognize them.

    e) The CW must be able to appropriately document observation of the PATIENT SELF-INGESTION of the anti-TB drug(s).

    f) The CW must demonstrate the capability to appropriately communicate problems with the PHN case manager.

3. Following post counseling and education, the4 adult patient must demonstrate and explain to the physician, nurse (at least one time) the items below, prior to the physician releasing DOT to CW administration.

    a) How to correctly take prescribed anti-TB drugs and the dosages of the prescribed anti-TB drugs.

    b) How the anti-TB drugs benefit him/her.

    c) The knowledge of signs and symptoms of TB disease and drug side effects that must re reported to the CW, PHN and physician.

4. For patients under 12 years of age, the parent or guardian should demonstrate ability to fulfill criteria outlined in 3 and it is recommended that:

    a) The parent give permission for and sign appropriate consent form for the CW to observe the under age 12 patient self-administer anti-TB drugs in the absence of the parent or guardian.

5. Prior to assuming independent patient visits, the CW must satisfactorily demonstrate:

    a) The ability to observe the patient self-administer anti-TB drugs.

    b) All behaviors as described on the Directly Observed Tuberculosis Therapy Skill Demonstration Inventory. This form must be completed and filed in the CW's training record prior to assuming independent patient DOT visits.

6. Only a Los Angeles County TB Control trained CW who has previously demonstrated competency in observing a patient take DOT and has appropriate documentation on file may relieve another CW. In circumstances when a substitute CW will provide DOT, the PHNS (or designee) must be notified and, whenever possible, the patient should be given advance notice that a substitute will make the next DOT visit.

7. Whenever possible, it is recommended that there be a written contract/agreement between the physician and patient detailing both the Health Department's and the patient's responsibility regarding DOT. The physician and the patient should sign the DOT plan. In the presence of the CW, the PHN must explain to the patient why and how DOT will be executed.

8. The CW must adhere to the Health Center Policy and Procedure regarding TB infection control both in the Health Center and in the field.

9. The CW will be provided with quarterly updates. These updates will be geared to CW's learning needs and interests. The CW must attend at least two quarterly updates per calendar year to continue providing DOT. Quarterly update attendance must be documented in the CW's training file and maintained by the CW's supervisor.

PROCEDURE FOR DIRECTLY OBSERVED THERAPY (OBSERVATION OF SELF-ADMINISTERED MEDICINE) BY THE COMMUNITY WORKER>

PRIOR TO FIELD VISIT:

1. The physician will refer patients with recommendations for clinic or home-based DOT. The PHNS will make the Community Worker (CW) assignments for field visits and inform the appropriate Public Health Nurse (PHN).

2. A copy of H-513 shall be maintained in the master DOT file.

3. Anti-TB drugs are to be packaged for DOT as per LAC PHP&S policy and procedure.

4. Each package is to be labeled appropriately as per LAC PHP&S policy and procedure.

5. A complete physician's order must be on file in the patient's medical record with disposition of DOT to clinic or field visits.

6. A DOT folder will be compiled for each patient to include at least:

    a) A patient profile with the patient's address/location and the address where the CW will meet the patient for DOT. (A map or description should be included when necessary, e.g., rear entry, specific area of a park etc.)
    b) The Patient Checklist Directly Observed Therapy Record (hereafter referred to as the checklist) containing a list of initial and current anti-TB drug regimen.
    c) A schedule of the patient's field and health center appointments.
    d) The CW will retrieve and return the folder from an agreed upon location within the health center. Master documents shall be maintained by the PHNS.

FIELD VISIT:

7. During each field visit, prior to administration of DOT, the CW must review the checklist of symptoms and side effects with the patients. If the patient denies all symptoms and side effects, the CW will write a "D" (denies) in each appropriate box on the checklist.

8. The CW will then watch and document the patient SELF-INGEST the anti-TB drugs.

9. If any items on the checklist are noted by the patient or observed by the CW, the CW will write a "C" (claim/observes) in the appropriate box on the checklist. Anti-TB drugs will be withheld and a prompt report will be made to the PHN and PHNS. The PHNS or designee must be available to take phone calls from the CW at all times while CWs are in the field. The CW is to document (on the DOT checklist) the name of the individual taking the phone call.

10. Upon notification, the PHNS must make an initial nursing assessment of the problem(s) noted by the CW. Based upon the available information, the PHNS will notify the physician and schedule a home or clinic visit for the patient.

    DOT is not to be given to a patient referred for a nursing assessment until the physician documents clearance to resume DOT. It is the responsibility of the PHNS to notify the PHN and CW to resume DOT. (Note: CWs may receive and act on orders provided directly by the physician.)

11. Any patient who is unable to ingest DOT properly under the observation of the CW (thus missing doses) must be referred to the PHNS for referral to PHI and/or physician as outlined in the LAC TB Control manual.

    NOTE: The CW should never leave anti-TB drugs for ingestion later or with a person other than the patient unless previously authorized by the physician.

12. Any patient who refused to follow the treatment plan must be seen in clinic to reassess the treatment plan.

ONGOING PATIENT MANAGEMENT

13. If the patient fails to meet the CW at the agreed time and location, the CW may attempt to locate the patient based upon health center and PHNS recommendations and guidelines. If the patient is lost to follow-up, the PHNS must be notified immediately by the CW. The PHNS will notify the physician and initiate action to find the patient.

14. Every week, the CW must submit all DOT checklists to the PHNS for review and signature. The checklist is to be filed into the patient's medical record. The PHNS will document information on adherence etc. on the forms. Documentation of all missed doses is to be maintained.

15. DOT folder review is to be done weekly to address patient adherence as well as medical management issues. These reviews are to include the physician; PHNS, DOT nurse, and all others involved with the patient's DOT. This review can be part of, but should not be restricted to, the chest team meetings.

16. The PHNS is to consult the physician to address all identified problems.

Noted and Approved:

[Signature on File]

Paul T. Davidson, M.D.
Director Tuberculosis Control

[Signature on File]

James Haughton, M.D.
Public Health Programs and Services

Appendix H. Protocol and Standardized Procedures for Extended Role Nurses Functioning in the Tuberculosis Control Program

LOS ANGELES COUNTY
TUBERCULOSIS CONTROL PROGRAM
STANDARDIZED PROCEDURES FOR TUBERCULOSIS EXTENDED ROLE NURSES

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In accordance with the Department of Health Services/Policy for utilizing nurses in an expanded role, this document contains policies, and protocols governing the practice of the Extended Role Nurse in the management of tuberculosis.

General Policy Component:
The Tuberculosis Extended Role Nurse (ERN) is a registered nurse who has had additional training in tuberculosis (TB) control practices and the management of patients who have latent tuberculosis infection (LTBI) or TB disease. The ERN is specifically prepared to implement and supervise patients for whom Isoniazid (INH) therapy for LTBI is indicated. As determined, tested and monitored by the Los Angeles County Tuberculosis Control Program, the ERN may also supervise the care of patients who have other LTBI treatment regimens and who have uncomplicated pulmonary tuberculosis (PTB) disease (Class III) which is stable on a medical regimen prescribed by a physician. The ERN may perform these functions under the following conditions:

1. ERNs will acquire their caseload as follows:

   A. The following categories of patients may be started on a daily INH treatment regimen for LTBI by the ERN and followed without first being seen by the physician per Protocol #1:

      Converters and reactors (TB Class II) who are ages 4 through 34 years. (Exceptions: See "B" below and "C" next page).

      The physician must review the charts of these patients, sign the prescription, and sign the order referring the patient to the ERN, within one week of starting LTBI therapy.

   B. The following categories of patients may either be examined by the physician before referral to the ERN, or after a review of the medical record, the physician may refer the patient directly to the ERN to initiate LTBI therapy. The order for LTBI therapy and the order referring the patient to the ERN must be signed by the physician prior to the patient being seen by the ERN:

      (1) All contacts: TB Class I or II. If the drug sensitivities of the index case are not known when the contact is assigned to the ERN, the ERN must obtain the drug sensitivities as soon as they are available. Should any drug resistance be found, the ERN must refer the contact to the physician (per Policy - ERN Caseload: C-3, p. 2) for possible re-evaluation of LTBI therapy.
      (2) Reactors with certain high risk medical conditions that have been associated with an increased risk of TB disease such as diabetes, injection drug use, chronic immunosuppression, and end-stage renal disease.
      (3) Reactors with other medical conditions such as seizure disorders, any type of cancer treatment, complex medical treatment regimens for other health problems, etc.
      (4) Class I contacts or TB Class II patients who are pregnant or less than 6 months postpartum for whom LTBI therapy is indicated.

(5) For patients who have had a break in therapy of greater than one month, the physician must decide if LTBI therapy is to be restarted and for how long, and order another chest x-ray if indicated.

C. The following categories of patients must be seen by the physician at least for the initial exam before referral to the ERN:

(1) Stable PTB, Class III.
(2) HIV-positive patients or those at high risk of acquiring HIV infection.
(3) All contacts to drug-resistant TB.
(4) All patients diagnosed with TB (Class IV). This includes all Class B Aliens.
(5) Patients at increased risk of liver disease, including ≥ 35 years old, a history of hepatitis, liver disease, or chronic liver disease including carriers of hepatitis, the daily use of alcohol, current or past injection drug use.
(6) Patients with a history of allergy or adverse reaction to anti-TB medications.
(7) All children under age 4.
(8) Any patient on LTBI treatment regimens other than INH daily.

D. The following categories of patients should NOT be referred to the ERN and must be followed by the physician:

A. Unstable PTB, Class III
B. Extra-Pulmonary TB, Class III
C. Drug-Resistant TB, Class III
D. PTB, Class III/HIV-positive
E. TB, Class V

E. ERNs may administer Directly Observed Therapy (DOT) or Directly Observed Preventive Therapy (DOPT) to any patient for whom it is ordered per the physician.

2. The TB credentialed physician(s) will provide medical consultation and supervision for the ERNs, and will meet with the ERN on a regular basis. Protocols 1, 2 and 3 describe situations necessitating referral to or consultation with a TB physician. It is not essential that a credentialed physician be on the premises for ERNs to perform their role; however, a credentialed physician must be readily available by phone for consultation. ERNs may also book the patient's medical record to chart review for consultation, or return the patient to the physician's care by giving the patient an appointment to the doctor's clinic, and recording the reason for the action in the progress notes. A Public Health Nursing Supervisor or Supervising Clinic Nurse will provide supervision for the ERN's independent nursing functions.

3. ERNs will provide care primarily in the clinic setting, however, broken appointment follow-up and/or monitoring for adverse reactions to medication may be done via phone or coordinated with the District Public Health Nurse (DPHN).

4. ERNs may label and dispense medications that have been prescribed by the physician as outlined in Appendix 1.

5. Each ERN shall have possession of a copy of the signed Standardized Procedures for TB-ERNs.

6. Patients are to be informed that they are being seen by an ERN who has had additional training to provide the required care and that they may see a physician upon request.

7. ERNs shall wear name tags clearly identifying them by name and classification.

8. ERNs may do tuberculin skin testing (TST), pregnancy testing as per CHS Policy #320, or draw blood for liver function tests (LFTs) related to their caseload and other tests as ordered by the physician.

9. These procedures will be reviewed annually and revised as necessary.

EXTENDED ROLE NURSE REQUIREMENTS:

1. Training Course Eligibility (to be determined by TB Control Program)
   Current Requirements Are:
   a. current valid California registered nurse license
   b. completion of a half-, and one- or two- day General TB In-service or an equivalent course presented by the TB Control Program within the previous 5 years
   c. one year of experience in tuberculosis nursing
   d. an agreement by the nurse and supervision that the nurse will practice on a regular basis as an ERN for at least one year after completion of the course.
2. Training Course and Certification
   The ERN will be certified when the nurse has:
   a. completed the Extended Role Nurse Education Course designed and administered by TB Control Program
   b. scored 80% or better in the course written examinations
   c. assumed a caseload within 3 months following successful completion of the course
   d. satisfactorily demonstrated competency and quality of care as determined by TB Control Program staff using the TB-ERN Clinic Observation and Chart Review during on-site evaluations conducted at 3 months and 6 months after the ERN has assumed a caseload.
3. The certification process must be completed within one year of taking the course. Certification will continue for a period of 3 years after which time the ERN must be recertified.
4. Recertification will be done for each ERN every 3 years or at the discretion of the district health center supervision or TB Control using the following criteria:
   a. continues to practice as an ERN (MINIMUM – 1 ERN clinic monthly) under a credentialed TB physician
   b. satisfactory completion of a one-day recertification course offered by TB Control Program or, on-site evaluation at discretion of district health center staff or TB Control Program
   c. attendance at 50% or more of the ERN Continuing Education classes which are offered by TB Control Program 4 times per year
   d. continued competency on the annual performance evaluation.
5. The TB Control Program must recertify an ERN who becomes inactive by failing to meet the requirements stated in #4 above, before resuming active practice as an ERN. An ERN may resume active status as follows:
   a. If the period of inactivity has been less than 2 years, the ERN must complete a recertification course offered by TB Control

b. If the period of inactivity has exceeded 2 years, the ERN must repeat the 5 day ERN course. Exceptions may be considered on an individual basis if the ERN has remained active in TB services.

APPROVAL

The Standardized Procedures for tuberculosis extended role nurses have been approved by:

Authorized Persons	**Date of Approval**
Annette T. Nitta, M.D. Director, Tuberculosis Control Program	
Robert Kim-Farley, M.D., MPH Director, Communicable Disease Control Programs	
A. Belinda Towns, M.D., MPH Medical Director, Public Health	
Nancie S. Bendaña, RN, MS Interim Nursing Director, Public Health	
April King-Todd, R.N., BSN, MPH Nurse Manager, Tuberculosis Control Program	

DISTRICT APPROVAL **HEALTH CENTER**: _____

The physicians and ERNs listed below agree to function under the ERN Standardized Procedures. These Standardized Procedures for TB-ERNs have been approved by:

Date of Approval:_____

_____ _____

Area Health Officer Area Medical Director

_____

Nurse Manager

CERTIFIED TUBERCULOSIS EXTENDED ROLE NURSE(S) AUTHORIZED TO FUNCTION UNDER THESE STANDARDIZED PROCEDURES

Name/Title	**Date**

The TB credentialed physician(s) listed below has/have agreed to be medical consultants for the above Tuberculosis Extended Role Nurse(s), who are authorized to function under these Standardized Procedures.

No names may be added after the date signed by the physician(s) below without their prior approval and dated initials.

PHYSICIAN(S)

Name/Title	**Date**

These Standardized Procedures shall be reviewed annually. A new signature page will be requested by TB Control Program.

SIGNATURE PAGE CONTINUED HEALTH CENTER:

This page is to be used in the event that additional TB credentialed physicians (e.g., "AS NEEDED", new or transfer physicians) or ERNs (e.g., newly trained or transfer ERNs) are utilized in the chest clinic.

EXTENDED ROLE NURSE(S)

Name/Title	**Date**
_____	_____
_____	_____
_____	_____
_____	_____

PHYSICIAN (S)

Name/Title	**Date**
_____	_____
_____	_____
_____	_____
_____	_____

PROTOCOL #1
MANAGING HIGH RISK CONTACTS (TB CLASS I), CONVERTERS AND REACTORS WITH LATENT TB INFECTION (TB CLASS II)

POLICY: Extended Role Nurses (ERN) may implement Isoniazid (INH) for the treatment of LTBI infection and supervise the treatment of high risk contacts, converters and reactors. Please see General Policy Component (A. p.1) -ERN Caseload regarding which patients may be started on LTBI therapy by the ERN before the prescription is signed (General Policy Component), and which patients must have the prescription signed before the ERN can initiate or continue LTBI therapy (General Policy Component). The medical record must have a completed TB EPI (screening) Report (H-304), results of baseline liver function tests (LFTs) when the history reveals potential for liver damage - see Protocol #1: D-12 (p.11), an order referring the patient to the ERN, and a prescription for LTBI therapy signed by the physician. The prescription is to be written on form H-261. The ERN may also supervise patients for whom Rifampin preventive therapy is ordered by the physician (e.g., contacts to an INH-resistant index case).

PROTOCOL:

A. DEFINITIONS:

1. High-Risk Contact: a person exposed to someone with infectious TB disease (either close or other-than-close). The (TST) given by the Mantoux method may be positive (5mm or greater) or negative. The chest x-ray is normal.*
2. Converter: a person with a TST given by the Mantoux method that has increased at least 10mm of induration from <10mm to ≥ 10mm within two years. The chest x-ray is normal.*
3. Reactor: a person that has a positive TST and no clinical, bacteriological or radiographic evidence of current disease. The TST reaction must be documented in "mm." If no documentation can be obtained, the TST should be repeated, unless contraindicated per the physician's evaluation, before the initiation of LTBI therapy. The chest x-ray is normal.*
4. Positive TST: a reaction of measurable induration in the skin after intradermal injection of 5 tuberculin units (5TUs) by the Mantoux method. Patients with the following reaction have a positive TST at:

   ≥5mm:
   1) High-Risk Contacts
   2) Chest x-ray and clinical findings consistent with TB: follow per Protocols #2 & #3
   3) Immunosuppressed individuals
   4) Infected with HIV or those at high risk of acquiring HIV infection.

   ≥10mm: All others regardless of age

   *If the chest x-ray is less than 3 months old and the patient is asymptomatic, there is no need for a repeat chest x-ray. If the chest x-ray is over 3 months old the patient must have a repeat chest x-ray before INH is started. A repeat chest x-ray on a patient who restarts LTBI therapy is at the discretion of the physician. Consideration should be given to the length of time the patient has been off medication, the amount of medication already taken, the risk level of the patient, and the development of any TB symptoms.

PROTOCOL #1
MANAGING HIGH RISK CONTACTS (TB CLASS I), CONVERTERS AND REACTORS WITH LATENT TB INFECTION (TB CLASS II)

B. DATABASE:

1. Subjective: Asymptomatic. May have history of contact to an infectious case of TB.
2. Objective: TST and chest x-ray reading. The TB physician may do a chest x-ray reading. The TB physician must review a chest x-ray report by a radiologist if the report is other than normal or within normal limits.

C. ASSESSMENT/DIAGNOSIS:

1. High-risk contact with negative TST reaction – TB Class 1.
2. Positive TST reaction – TB Class II (latent TB infection).

D. TREATMENT PLAN AND FOLLOW-UP:

1. Patients with a positive TST at the time of the skin test reading must be assessed for conditions that increase the likelihood of the patient developing TB disease. The priority status must then be recorded in box #4 of the H-304 and H-261. (See chart in Appendix 6 – "Priorities for Targeted Skin Testing"). For all patients with Priority I risk factors, these conditions should be documented on the "Master Problem List."

2. Patients with a positive TST will also be assessed for the presence of high risk factors for HIV infection. All patients with risk factors for HIV will be strongly encouraged to have HIV counseling and testing. HIV-positive patients and those at high risk of acquiring HIV infection may be at significant risk for developing TB disease and should be evaluated by the physician before referral to the ERN.

3. Implement/continue LTBI therapy per protocol. Medication may be dispensed as per Appendix 1. The risks and benefits and the need for compliance must be explained to the patient at each visit before dispensing medication. The patient must give verbal consent before proceeding.

4. The patients will be seen monthly to monitor compliance, to determine how medication is being tolerated, to assess or monitor for signs and symptoms of toxicity, and to obtain prescription refill if indicated. Note: The patient should be seen in person. A rare exception may be made for "return" patients who come in for a refill if extenuating circumstances do not permit the patient to be present and the patient has been compliant. If the patient is absent, a refill may only be given to a close relative (e.g., parent, legal guardian, and spouse). This person must be able to provide an accurate history about the patient's compliance, problems, etc. If the nursing assessment indicates any possible area of concern, or if the nurse is not comfortable giving the refill, the medication

should not be given. The physician must approve any refill given when the patient is absent.

5. The usual length of LTBI therapy is 6 months or as otherwise ordered by the physician. EXCEPTIONS: HIV-positive reactors or individuals at high risk for HIV infection and children and adolescents less than 18 years of age should receive 9 months of INH. The physician must authorize any other time interval.

6. Discontinue medication if it is not tolerated due to side effects. After evaluating the patient and consulting with the physician, medication may be restarted if the side effects are minor and there is no evidence of liver toxicity and the physician orders the restarting.

7. If patient develops signs or symptoms of liver toxicity (such as unexplained fatigue, weakness, malaise, anorexia, nausea, vomiting, dark urine, jaundice) discontinue medication, draw LFTs, document findings in the chart, and consult with the physician. Make an appointment for the patient to be seen in clinic by the physician if ordered by physician. If other signs or symptoms of serious side effects or toxicity are noted, discontinue medication and consult with physician immediately.

8. All high-risk TB Class I contacts (e.g., negative TST, from 0-4 mm) must have an initial normal chest x-ray. Those contacts that have a negative reaction to an initial TST must be retested 3 months after they were last exposed to the infectious TB index case. LTBI therapy may be discontinued if the repeat TST is negative if the patient is no longer being exposed to infectious TB, and, if the physician concurs.

   The duration of LTBI therapy for the HIV-positive Class I TB contact should be individualized. Consideration must be given to the likelihood of LTBI and the possibility of anergy. The physician must specify the length of LTBI therapy for these contacts.

   Note: It is the responsibility of the ERN to obtain the necessary information to determine that the patient is no longer exposed to an infectious TB index case before INH is discontinued.

9. During the course of LTBI therapy, medication dosages for children weighing less than 60 lbs should be adjusted based on weight. When the dosage is changed from the original order, a new prescription needs to be written on the form H-261 in Section 10, "NOTES" (e.g., Sig: INH 100mg ii p.o. daily
   disp: 60 tablets
   refill x 2)

   or in the Progress Notes (H-654) and signed by a physician within one week.
   NOTE: Any pediatric patient weighing ≥60 lbs should receive 300 mg of INH.

10. Close the patient to clinic follow-up when the patient has completed LTBI therapy as prescribed by the physician. If noncompliant see "broken appointment algorithm" in appendix for a summary of current recommendations. A "Tuberculosis Patient Discharge Status" card (H-1832) will be given to those patients completing LTBI therapy. This card may be given to the patient at the time the final refill is given if the patient is currently compliant with therapy. The patient must be counseled to contact the clinic immediately if any problems develop during the final month of therapy.

11. During the course of LTBI therapy, females of childbearing age should be assessed monthly for their last menstrual period (LMP) and the LMP date documented on the H-261. If pregnancy is suspected, the ERN should do a pregnancy test, document the results in the chart, and consult with the physician if the test is positive.

12. The physician must examine patients with an increased risk of liver damage before referral to the ERN (see Policy -ERN Caseload: C-5 p.2). These patients must have normal LFTs before referral to the ERN for LTBI therapy. Monthly LFTs must be obtained for at least 3 months after referral. Any abnormal LFT must be documented in the chart and the chart reviewed by the clinician. The need for further evaluation, including LFTs or other lab work, is at the discretion of the physician. The factors associated with an increased risk of liver damage include age ≥35 years, a history of hepatitis, laboratory results indicating hepatitis, liver disease, the daily use of alcohol, and injection drug use. Pregnant women on LTBI treatment should have LFTs near the time of delivery. During the first 6 months postpartum, women need monthly LFTs when on LTBI-therapy. Pregnant women and women in the first 6 months postpartum are not routinely placed on LTBI therapy unless they are at high risk of developing TB.

13. If there has been a break in LTBI therapy for over one month, consult with the TB physician per General Policy Statement – ERN Caseload: B-5, (p.2) before restarting INH.

E. CONDITIONS REQUIRING CONSULTATION WITH TB PHYSICIAN:

1. Persistent intolerance and/or signs and symptoms of INH toxicity such as unexplained anorexia, fatigue, weakness, malaise, nausea, vomiting, dark urine, or jaundice. Other possible side effects include rash, headache, dizziness, and fever.

2. Signs and symptoms of TB disease, e.g., chronic cough, night sweats, persistent low-grade fever, hemoptysis, unexplained respiratory complaints, and any unexplained weight loss in children or unexplained weight loss (greater than 10 pounds in 3 months) in adults

3. Patients having risk factors associated with an increased risk of liver damage (see D-11, p.11).

4. Signs and symptoms or a history of other medical problems, e.g., seizure disorders, cancer, high dosage of steroids, diabetes, etc.

For the above conditions, prior to consulting with the physician, the ERN needs to: stop the INH, obtain a thorough history about the problem(s) including an assessment of possible causes, document these findings in the patient's chart and then consult with the physician. The physician will evaluate the condition(s). The physician may wish to follow the patient, order laboratory test(s) and/or continue to hold the INH. The physician must order the restarting of therapy.

F. PATIENT EDUCATION

Emphasize the risk factors associated with being a high-risk contact or converter. Explain the presence of HIV infection as an important risk factor for developing clinical TB. Explain the meaning of a positive TST reaction. Discuss the difference between LTBI and TB disease, reason for taking medication, instructions for use, and importance of regular use. Explain possible adverse reactions to medication and procedure to follow if signs and symptoms occur (including stopping the medication until they can consult with the nurse or doctor). The principle of education is to emphasize the benefits of LTBI therapy and the infrequency of adverse reactions. Provide the patient with appropriate written material in the appropriate language. The education should be supplemented with flip charts or other audio-visual aids. Obtain verbal consent from patient to begin LTBI therapy. The record must also contain a signed, dated and witnessed consent before LTBI therapy is initiated.

G. RECORD KEEPING:

Clinic visits, medication dispensed, LTBI therapy surveillance, TST, chest x-ray, laboratory test results and broken appointment follow-up will be documented on form H-261. If additional space is needed to document problems and action(s) taken, a Progress Notes (H-654) may be used. The Progress Notes must reference the flow sheet (H-261) each time the H-261 is used. The SOAP format is to be used on the Progress Notes. All documentation in the chart must be done in accordance with the County of Los Angeles, Department of Health Services, Medical Records, Policy and Procedure Manual. The closure of all patients on LTBI therapy must be done on the H-304 and the appropriate copy submitted to the TB Control Program.

1. DOCUMENTATION SYSTEM (Excerpted from County Los Angeles, Department of Health Services, Medical Records, Policy and Procedure Manual).

a. POMR Charting System

The method used to record and codify medical information is the Problem Oriented Medical Record (POMR) charting system.

The POMR promotes meaningful recording of information usable by all the health team members. It provides mechanisms of collecting and recording data systematically so that rationale for action and outcome can be evaluated.

The POMR is based on four phases of medical action: data based collections, problem formulation, problem oriented plans and progress notes of each problem

Progress notes shall be recorded in the SOAP format of **S**ubjective, **O**bjective, **A**ssessment and **P**lan.

All patient encounters, including those that have the primary recording else-where, e.g., flow sheet, are noted in the progress notes with the date, problem and notation to which form contains the primary recording ("see flow sheet" and signature).

b. DHS Documentation Standards

DEFINITIONS:

Medical Record:	The legal document that records information regarding a patient's care and treatment at a DHS facility.
Provider:	The person who provides that care; can be a physician, nurse, technician, allied health professional, etc.
Documentation:	The information placed in the medical record that provides a description of the care provided, the patient's response to that care, the medical impressions about that care, and the recording of laboratory or diagnostic test results. Also included are flow sheet recordings of vital signs, etc.
Legibility:	The information must be readable.

1). Purpose of Documentation

- To create a record to document a patient's complaints, history findings, impressions, diagnoses, treatments and outcomes
- To provide a means of communication between various providers about the patient's condition
- To record diagnoses and procedures to justify third-party reimbursement

- To serve as a legal document to provide evidence of care rendered in the event of a legal dispute.

2). Information to Document
General Rules

- The patient's full name and medical record number must be on each page.
- Date, times, signatures and titles are required for each entry.
- Signatures must identify the signee by either being legible or by having the signee print his/her name below the signature.
- Entries must be legible.
- Entries must be made in blue or black ink.
- Errors may be denoted by drawing one line through the entry, writing "error" above the line, followed by the person's initials, date and time.
- NO WHITE OUT OR ANY OTHER OBLITERATION IS ALLOWED.
- Entries must correspond in time to the care provided.
- Late entries (notes recorded that are out of time sequence with prior existing notes) are acceptable only if the information is designated as a "late entry" and the note identifies the date and time of actual writing.
- Subsequent notes (notes used to document information that occurred previously, but do not qualify as a late entry) may be made if the information is required to clarify or correct previous written information. Subsequent notes must identify the date and time actually written and make reference to the date and time of the prior note that is being clarified.

3). Consistency

- Information recorded in the medical record must be accurate and factual and support conclusions and impressions. (e.g., if the provider documents a "delay in care," the note should include a depiction of critical times instead of just recording "delay").
- The provider must review previous notes by other providers at the time of documenting a progress note. This will ensure continuity and consistency in the record.
- The provider must review and correct dictated notes, which may include procedure and/or operative notes, prior to signing them.

4). Documenting Complications and/or Adverse Events

- Documentation of complications/adverse events must be objective, factual, accurate, and timely.
- Documentation should note that the patient and/or family was informed of complication/adverse event, when possible. If not informed, the reason should be noted.
- For complications/adverse events that involve a specific health care team, all members of that team should have access to the same set of facts concerning times and sequences of events.
- Clarify factual details and sequences, if needed. Inconsistencies should be avoided, if possible.

5). Documenting Disagreements

- The medical record is not to be used to express negative comments about medical care rendered by another provider.
- Disagreements between providers related to findings of exams or interpretation of diagnostic tests should be noted and resolved, if possible.
- Disagreements between providers on the treatment plan shall include the basis for any alternative treatment recommendations.

PROTOCOL # 2
MANAGING CLINICALLY INACTIVE TUBERCULOSIS CLASS IV

POLICY: Extended Role Nurses may implement LTBI therapy and supervise the treatment of LTBI in patients who have been inadequately treated or received no treatment for TB disease and are without evidence of current disease activity (TB Class IV). The medical record must have a completed TB EPI (screening) Report (H-304), the results of baseline liver function tests (LFTs) when the history reveals a potential for liver damage - see Protocol #2: D-8, (p.17), a prescription for LTBI treatment as written by the TB physician, and a signed order referring the patient to the ERN. The prescription is to be written on the form H-261 or TB Patient Clinical Summary (H-513). The patient with TB Class IV must be seen by the physician before referral to the ERN per General Policy Statement -ERN Caseload: C-4, (p.4).

PROTOCOL:

A. DEFINITION: TB Class IV – is TB not clinically active with a history of episode(s) of TB or abnormal but stable radiographic findings, a positive reaction to the TST (≥ 5mm), negative bacteriological studies (if done), and no clinical or radiographic evidence of current TB disease. History reveals the patient has not completed a prescribed course of chemotherapy or has had no previous treatment. The TB physician must have ruled out active TB disease.

B. DATA BASE:

1. Subjective: Asymptomatic.
2. Objective: TST and chest x-ray reading.

C. ASSESSMENT/DIAGNOSIS: Tuberculosis Class IV.

D. TREATMENT PLAN AND FOLLOW-UP:

1. Implement/continue LTBI therapy as prescribed by the TB physician. Medication may be dispensed using Protocol #4. The risks and benefits and the need for compliance must be explained to the patient at each visit before dispensing medication. The patient must give verbal consent before proceeding.

2. The patient will be seen monthly to monitor compliance, to determine how medication is being tolerated, signs and symptoms of toxicity, and the prescription refill.

3. The preferred LTBI treatment is INH and Rifampin (Rifamate) for 4 months. If Rifampin is not tolerated or is contraindicated, INH should be given for 9 months.

4. Discontinue medication if it is not tolerated due to side effects. After evaluating the patient, documenting in chart, and consulting with the physician, medication may be restarted if the side effects are minor, there is no evidence of toxicity, and the physician orders the restarting.

5. If patient develops signs or symptoms of liver toxicity, (such as anorexia, fatigue, weakness, malaise, dark urine or jaundice) discontinue medication, draw LFTs, document findings in the chart and consult with the physician. Make an appointment for the patient to be seen by the physician if ordered by physician. If other signs or symptoms of serious side effects or toxicity are noted, discontinue medication and consult with the physician immediately.

6. Children are rarely, if ever, diagnosed with TB Class IV. However, should a child be on LTBI therapy for TB IV, medication dosages for children weighing less than 60 lbs. should be adjusted based on weight as ordered by the physician. When the dosage is changed from the original order, a new prescription needs to be written on the form H-261 in Section 10 "NOTES" (e.g., Sig: INH 100mg ii p.o. daily
   disp: 60 tablets
   refill x 2)
   or on the TB Patient Clinical Summary (H-513), if applicable, or in the Progress Note (H-654) and signed by a physician within one week. **NOTE: Any pediatric patient weighing ≥ 60 lbs should receive 300 mg of INH. The Rifampin dosage for children is 10-20 mg/kg to a maximum of 600 mg daily.**

7. Close the patient to clinic follow-up when patient has completed LTBI therapy as prescribed by the physician. The physician must approve closure of TB Class IV patients (See "chest clinic broken appointment guidelines" in appendix 3 for a summary of current recommendations). A "Tuberculosis Patient Discharge Status" card (H-1832) will be given to those patients completing LTBI therapy, and may be given at the time of the final refill if the patient is currently compliant with his therapy. The patient must be counseled to contact the clinic immediately if any problems develop during the final month of therapy.

8. The physician must examine patients with an increased risk of liver damage before referral to the ERN (see General Policy Component ERN Caseload: C-5, p.2). These patients must have normal LFTs before referral to the ERN for LTBI therapy. Monthly LFTs must be obtained for at least 3 months after referral. Any abnormal LFTs must be documented in the chart and the chart reviewed by the clinician. The need for further evaluation including LFTs or other lab work is at the discretion of the physician. The factors associated with an increased risk of liver damage include age ≥35 years, a history of hepatitis, laboratory results indicating hepatitis, liver disease, or chronic liver disease, the daily use of alcohol, and injection drug use.

Pregnant women on LTBI treatment should have LFTs near the time of delivery. During the first 6 months postpartum, women need monthly LFTs when on LTBI therapy. Patients on INH and Rifampin should be monitored with monthly LFTs throughout treatment.

9. If there has been a break in LTBI therapy for over one month, consult with the TB physician per General Policy Statement - ERN Caseload: B-5, p.2 before restarting the medication.

10. During the course of LTBI therapy, females of childbearing age should be assessed monthly for last menstrual period (LMP) and the LMP date should be documented on H-261. If pregnancy is suspected, the ERN should do a pregnancy test, document the results in chart, and consult with physician if the test is positive.

E. CONDITIONS REQUIRING CONSULTATION WITH CHEST CLINICIAN:

1. Persistent intolerance and/or signs and symptoms of INH or Rifampin toxicity such as unexplained anorexia, fatigue, weakness, malaise, nausea, vomiting, abdominal pain, dark urine, or jaundice. Other possible side effects include rash, headache, dizziness and fever.

2. Signs and symptoms of TB disease, e.g. chronic cough, night sweats, persistent low-grade fever, hemoptysis, unexplained respiratory complaint or unexplained weight loss in children or unexplained weight loss (greater than 10 pounds in 3 months) in adults.

3. Patients having risk factors associated with an increased risk of liver damage (see D-8 p.17).

4. Signs and symptoms or a history of other medical problems, e.g., seizure disorders, cancer, high dosage of steroids, diabetes, etc.

For the above prior conditions to consulting with the physician, the ERN needs to stop the INH and obtain a thorough history about the problem(s) including an assessment of possible causes, document these findings in the patient's chart and then consult with the physician. The physician will evaluate the condition(s). The physician may wish to follow the patient, order laboratory test(s) and/or continue to hold the INH. The physician must reorder the restarting of therapy.

F. PATIENT EDUCATION:

Emphasize the significance of an abnormal chest x-ray and the increased risk of developing current TB disease. Explain the presence of HIV infection as an important risk factor for developing clinical tuberculosis. Explain the meaning of a positive TST reaction. Discuss the difference between LTBI and TB disease, reason for taking medication, instructions for use, and importance of regular use. Explain possible adverse reactions to medication and procedure to follow if signs and symptoms occur including stopping of medication until the patient can consult with the nurse or doctor. The principle of education is to emphasize the benefits of LTBI therapy and the infrequency of adverse reactions. Provide the patient with appropriate written materials in the appropriate language. The education should be supplemented with flip charts or other audio visual-aids. Obtain verbal consent from patient to begin LTBI therapy. The record must also contain a signed, dated, and witnessed consent before LTBI therapy is initiated.

G. RECORD KEEPING:

Clinic visits, medication dispensed, LTBI therapy surveillance, TST, chest x-ray, laboratory test results and broken appointment follow-up will be documented on the form H-261, or the TB Patient Clinical Summary (H-513) when both INH and Rifampin are used. If additional space is needed to document problems and action taken, the Progress Notes (H-654) may be used. The Progress Notes must reference flow sheets H-261 or H-513 each time the flow sheet is used. The SOAP format is to be used on the Progress Notes. All documentation in the chart must be done in accordance with the County of Los Angeles, Department of Health Services, Medical Records, Policy and Procedure Manual. The closure of all patients on LTBI therapy must be done on the H-304 and appropriate copy submitted to TB Control.

PROTOCOL # 3
MANAGING STABLE OR IMPROVING PULMONARY TUBERCULOSIS DISEASE (TB CLASS III)

POLICY: Extended Role Nurses may supervise the treatment of a patient who has stable or improving pulmonary TB disease (TB Class III). The patient must be on an effective treatment regimen and be improving clinically. The medical record must have a written physician's order referring the patient to the ERN and prescriptions for the patient's medications must be written on the TB Patient Clinical Summary (H-513) or Progress Notes (H-654). The ERN may follow patients on directly observed daily or intermittent therapy. Patients having drug-resistant TB, extra pulmonary TB disease, or who are HIV-positive must be followed by the physician per General Policy Statement - ERN Caseload: D, (p.2).

PROCOTOL:

A. DEFINITION: Pulmonary TB – is TB disease of the lung(s) that is clinically active with Mycobacterium tuberculosis complex on culture (if done) from the lung, plus clinical, bacteriological or radiographic evidence of current disease. The disease process must be stable or improving for the ERN to supervise the patient's treatment.

B. DATA BASE:

1. Subjective: Asymptomatic or clinically improving.

2. Objective: Chest x-ray reading, and clinical findings.

C. ASSESSMENT/DIAGNOSIS:

Pulmonary TB, Class III, stable.

D. TREATMENT PLAN AND FOLLOW-UP:

1. Check for compliance in taking medication.
2. Evaluate for signs or symptoms of side effects or toxicity.
3. Continue prescribed medications for the length of time specified by the physician.
4. Schedule patient for a clinic visit no less frequently than monthly to evaluate compliance, clinical progress and refill prescriptions.
5. Draw ordered laboratory tests including liver function tests (LFTs) during the clinic visit. Book the chart to the physician for review and evaluation if laboratory results are abnormal.
6. Perform vision screening each clinic visit if patient is receiving Ethambutol.
7. Obtain sputum specimen(s) for AFB smear(s) and culture(s) as outlined in the TB Control Manual. If patient is unable to raise sputum, obtain induced sputum.

8. Medication dosage for children should be adjusted based on weight and ordered by the physician.
9. Repeat chest x-ray at 3 months and at the end of the prescribed course of chemotherapy.
10. Book the chart to the physician for review and consultation before closing the patient to clinic follow-up.
11. The physician is to review and sign the chart within one week of each visit.

E. CONDITIONS REQUIRING CONSULTATION WITH CHEST PHYSICIAN:

1. Development of adverse reaction e.g., tingling, itching, headaches, rash, numbness, nausea, vomiting or symptoms of liver toxicity, etc. (per TB Control Manual).
2. Symptoms of progressive TB disease process: persistent cough, night sweats, persistent low-grade fever, hemoptysis, unexplained respiratory complaints, or weight loss.
3. Smear positive after 2 months or culture positive at 3 months or later after beginning of therapy.
4. Abnormal changes in laboratory results.
5. Worsening appearance on chest x-ray.
6. Signs and symptoms of other medical problems.
7. Patient requests consultation.

F. PATIENT EDUCATION:

Emphasize and explain the significance of TB disease. Appropriately interpret results of laboratory data. Reinforce the communicability of TB and the method of transmission. Explain reasons for taking medication, instructions for self-administration of medications or directly observed therapy, and the importance of regular use. Explain possible adverse reactions to medications and procedure to follow if signs and symptoms occur including stopping medication until consulting with nurses or physicians. The principle of education is to emphasize the benefits of medication (chemotherapy), the importance of taking medication as prescribed, and what to do about adverse reactions. Provide the patient with appropriate written material in the appropriate language. The education should be supplemented with flip charts or other audio-visual aids. The record must also contain a signed, dated, and witnessed consent form.

PROTOCOL # 3
MANAGING STABLE OR IMPROVING PULMONARY TUBERCULOSIS DISEASE (TB CLASS III)

G. RECORD KEEPING:

Clinic visits, medications dispensed, x-ray and laboratory test results and broken appointment follow-up will be documented on the TB Patient Clinic Summary (H-513). If additional space is needed to document problems and action taken, the Progress Notes (H-654) may be used. The SOAP format is to be used on the Progress Notes. All documentation in the chart must be done in accordance with the County of Los Angeles, Department of Health Services, Medical Records, Policy and Procedure Manual. The Progress Notes must reference the flow sheet (H-513) each time the flow sheet is used. The physician must order the closure of all TB (Class III) patients. Closure of all TB (Class III) patients must be done on the H-513 and the appropriate copy submitted to the TB Control Program.

LABELING AND DISPENSING PRESCRIBED MEDICATIONS

POLICY: Extended Role Nurses may label and dispense medication that has been prescribed by the physician for the management of TB. Medication should be dispensed in monthly allotments, unless otherwise specified. The physician must order any medication supply of greater than one month. The following drugs may be labeled and dispensed using the procedure below: Isoniazid, Ethambutol, Pyrazinamide, Rifamate, Rifampin, Rifabutin and Rifater.

PROCEDURE:

1. The prescription must be written and signed by the physician. The prescription will be written in the patient's record on the form H-261 or the TB Patient's Clinical Summary (H-513).

   NOTE: For some patients having TB II, uncomplicated by other medical conditions, the ERN may initiate daily INH before the order is signed per General Policy Statement – ERN Caseload: A (p.1). The prescription must be signed by the physician as soon as possible, but no later than one week after INH is initiated. The prescription must be written and signed in advance for some patients – refer to the General Policy Statement - ERN Caseload: A, B, C for guidelines.

2. The prescription must include
   - Date
   - Drug name and dosage
   - Size and quantity of medication to be dispensed
   - Direction for use
   - Number of refills permitted
   - Physician's signature

3. During the course of therapy, medication dosage for children weighing less than 60 lbs should be adjusted based on weight, (e.g. 10-15 mg/kg for INH and 10-20 mg/kg for Rifampin). All pediatric patients weighing 60 lbs or more should receive 300 mg of INH. See TB Control Manual (or the "First-Line TB Drug" table found in the appendix of this document) for the correct dosage of other TB drugs. When the dosage is changed from the original order, a new prescription needs to be written on the form H-261 in sec. 10, "NOTES"

   (e.g., Sig: INH 100mg ii p.o. daily
   disp: 60 tablets
   refill x 2)

   or on the TB Patient Clinical Summary (H-513), if applicable, or in the Progress Note (H-654) and signed by a physician within one week.

4. The pharmacy or warehouse furnishes the health center with medications in the manufacturer's container or appropriate package which includes the name of the drug, strength of drug, number and quantity supplied, the manufacturer, the expiration date and lot number. The prescription label is to be affixed to this container or appropriate packaging. All RN's may reduce from bulk container to smaller containers as long as the drugs are dispensed within the same clinic. If repackaged, the new container must list the above information.

5. The bottle must be labeled with the following information:

   - Patient name and record number
   - Drug name, strength and quantity dispensed
   - Directions for use
   - Date of issue
   - Expiration date (if not visible on the container or
   - another container is used)
   - Name, address and telephone number of the health center
   - Name of the prescribing physician
   - Initials of the nurse dispensing the drug
   - The manufacturer and lot # (if not visible on the container or another container is used)
   - A "side-effect" label (if available)

6. Record Keeping:
   The above information must be indicated on either the form H-261, the TB Patient's Clinical Summary (H-513) or the Patient Progress Note (H-654) per Policy #501.3 (Los Angeles County Department of Health Services. Public Health Center Nursing Procedures).

PATIENT EDUCATION:

Explain the reason for taking medication, instructions for self-administration of medication, or directly observed therapy, and the importance of regular use. Explain possible adverse reactions to medication and procedure to follow if signs and symptoms occur.

AUTHORITY: California Business and Professions Code: Section 2725, 2725.1, 4051.5 California Health and Safety Code Section 1206 (b). Opinion of the Attorney General of California, Volume 57 P. 93, 2-19-74.

ALGORITHM FOR ERN MANAGEMENT OF TB CLASS 1,2,3,4 or 5)

APPENDIX 2

TB CLASS 1 or 2

Converters/Reactors age 4-34 years old without medical problems

ERN to start daily INH & follow per Protocol #1

Length of therapy to be specified by physician

M.D. to sign prescription within one week of patient staring INH

All contacts – TB Class 1, 2

Reactors with high risk medical conditions or certain other risk conditions (E.4, p.12).

Pregnant or less than 6 months postpartum

Reactors with break in therapy over 1 month

M.D. Examination or M.D. Review of Chart before INH initiated

ERN may follow patient per Protocol #1 following M.D. order

HIV -positive

Contacts to drug-resistant TB

Increased risk of liver disease

Reactors <4 years old

M.D. Examination and Evaluation

ERN may follow patient per Protocol #1 following M.D. Order

TB CLASS 3, 4, or 5

TBCLASS 3 Pulmonary, Stable TB CLASS 4

M.D. Evaluation, Exam and Order

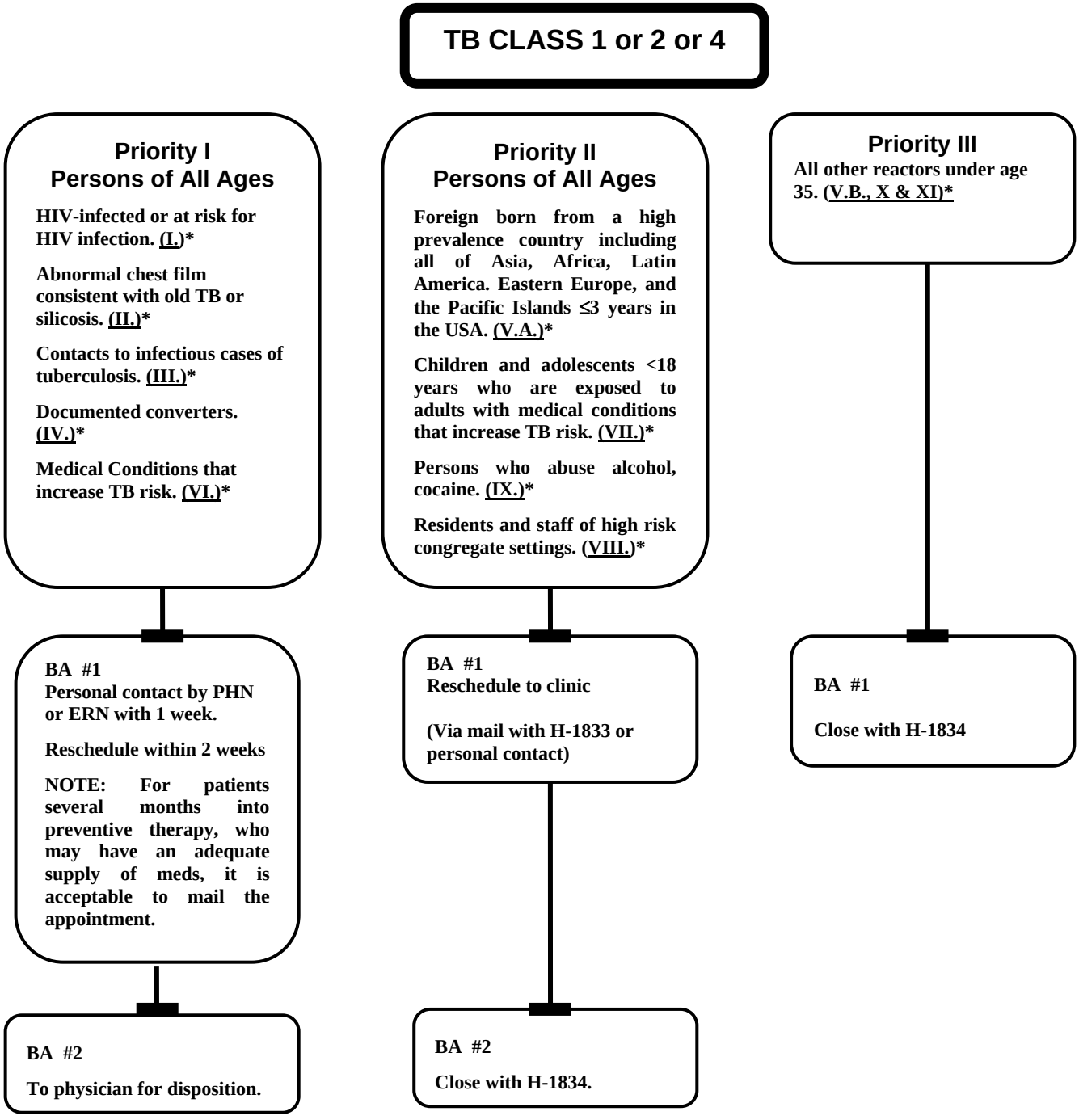
ERN may follow:
Protocol 2 (TB CLASS 4)
Protocol 3 (TB CLASS 3)

TB CLASS 3
TB CLASS 5
Unstable Pulmonary
Extra Pulmonary
Drug-Resistant
HIV-Positive

M.D. to Follow

CHEST CLINIC BROKEN APPOINTMENT (BA) GUIDELINES

TB CLASS 3 AND 5: All Charts Must be Reviewed by the Physician
Necessary Follow-up or Closure Must be Written by the physician



*Refers to Roman Numbers on pages 3 and 4 of the "Targeted Skin Testing and Treatment of Latent Tuberculosis Infection in Adults and Children." (Revised 11/2005)

First-Line TB Drugs

Drug	Dose in mg/kg (maximum Dose)						Adverse Reaction	Monitoring	Comments
	Daily		2 Times/Week *		3 Times/Week *				
	Children	Adults	Children	Adults	Children	Adults			
INH (Isoniazid)	10-15 (300mg)	5 (300mg)	20-30 (900mg)	15 (900mg)	not recommended	15 (900mg)	**More Common:** Hepatic enzyme elevation Hepatitis Peripheral neuropathy Mild effects on central nervous system **Less Common:** Rash, headache, dizziness, convulsions, fever **Drug Interactions:** Phenytoin (Dilantin)	Baseline hepatic enzymes (LFTs) for all persons at increased risk of liver damage (e.g. >35 yrs. history of hepatitis or liver disease, chronic liver disease, daily use of alcohol, injection drug use) & monthly for at least the first 3 months on INH. • Pregnant women –-LFTs near time or delivery • Postpartum women – LFTs monthly for first 6 months postpartum • Whenever patient has symptoms of adverse reactions	Hepatitis risk increase with age and alcohol consumption Pyridoxine can prevent peripheral neuropathy
RIF (Rifampin)	10-20 (600mg)	10 (600mg)	10-20 (600mg)	10 (600mg)	not recommended	10 (600mg)	GI upset Hepatitis Bleeding problems Flu-like symptoms Rash Drug interactions: Protease Inhibitors, estrogen (including oral contraceptives), methadone, coumadin derivatives, oral hypoglycemic agents, digitoxin, theophylline, anticonvulsants, cyclosporin, antiarrhythmic agents	Baseline lab measurements for adults • CBC and platelets • Hepatic enzymes Repeat measurements: • If baseline results are abnormal • If patient has symptoms of adverse reactions • Monthly if patient on more than one TB drug	Significant interactions with: • Protease inhibitors • Methadone • Birth control pills • Many other drugs Colors body fluids orange May permanently discolor soft contact lenses
PZA (Pyrazinamide)	15-30 (2 g)	20-25 (2 g)	50 (4 g)	40-50 (4 g)	not recommended	30-35 (3 g)	Hepatitis Rash GI upset Joint aches Hyperuricemia Gout (rare)	Baseline measurements for adults • Uric acid • Hepatic enzymes Repeat measurements monthly	Treat hyperuricemia only if patient has symptoms
EMB (Ethambutol)	15 (2.5g)	15	50	40-50	not recommended	25-30	Optic neuritis	Baseline and monthly tests • Visual acuity • Color vision	Not recommended for children too young to be monitored for changes in vision unless TB is drug resistant
SM (Steptomycin)	20-40 (1 g)	15 (1 g)	20 (1 g)	15 (1 g)	not recommended	15 (1g)	Ototoxicity (hearing loss or vestibular dysfunction) Renal toxicity Rash Fever	Baseline and repeat • Hearing (every 2 months • Kidney function (monthly)	Avoid or reduce dose in adults 60 years old

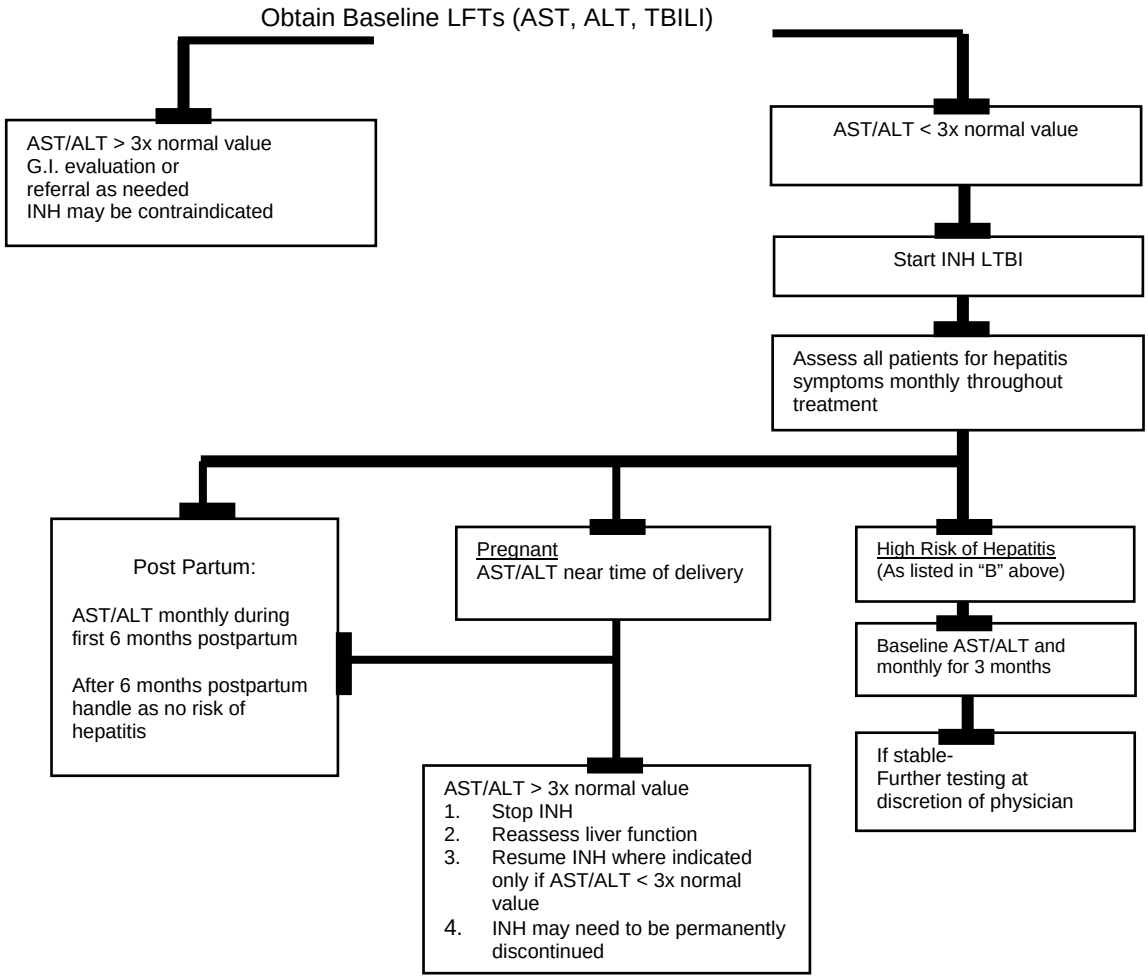
Notes: Adjust weight-based dosages as weight changes.
- All regimens should be used with DOT

Liver Function Monitoring during INH Therapy for LTBI

A. No Risk of Hepatitis
   1. No baseline LFTs
   2. Symptomatic monitoring monthly
   2. Stop INH when symptomatic and draw LFTs
   3. Resume INH where indicated only if AST is less than 3x normal value and M.D. reorders

B. High Risk of Hepatitis
   1. History of hepatitis, liver disease, daily use of alcohol, current or past injection drug use
   2. Pregnant or 3-6 months postpartum (including post abortion)*
   3. ≥ 35 years old **

Monitor the Patient at High-Risk for Hepatitis as Follows:



* LTBI therapy is not recommended unless other risk factors present. Hold until 3-6 months postpartum.
** LTBI therapy is not recommended for persons ≥ 35 years old with normal chest x-ray and no other risk factor.

Priorities for Targeted Skin Testing

TB CLASS 1 or 2 or 4

Priority I
Persons of All Ages

HIV infected or at risk for HIV infection. (I.)*

Abnormal chest film consistent with old TB or silicosis. (II.)*

Contacts to infectious cases of tuberculosis. (III.)*

Documented converters. (IV.)*

Medical Conditions that increase TB risk. (VI.)*

A. Injection drug use, regardless of HIV serostatus

B. Diabetes mellitus (especially insulin dependent)

C. Silicosis

D. End-stage renal disease

E. Chronic immunosuppression

   1. Transplant recipients
   2. Prolonged corticosteroid therapy (15 mg/day for 1 mo)
   3. Other immunosuppressive therapy

F. Hematological and reticuloendothelial diseases

G. Malnutrition & clinical situations associated m/rapid weight loss

   1. Cancer of the head and neck
   2. Intestinal bypass or gastrectomy
   3. Chronic malabsorption
   4. Low body weight (>10% below ideal body weight)

Priority II
Persons of All Ages

Foreign born from a high prevalence country including all of Asia, Africa, Latin America. Eastern Europe, and the Pacific Islands ≤3 years in the USA. (V.A.)*

Children and adolescents <18 years who are exposed to adults with medical conditions that increase TB risk. (VII.)*

Persons who abuse alcohol, cocaine. (IX.)*

Residents and staff of high risk congregate settings. (VIII.)*

Priority III
All other reactors under age 35.

1. Foreign born from a high prevalence country including all of Asia, Africa, Latin America. Eastern Europe, and the Pacific Islands ≤3 years in the USA. (V.A.)*
2. All other reactors except pregnant women (X & XI)

***Refers to Roman Numbers on pages 3 of new Los Angeles County Standards for LTBI. (Revised 11/2005)**

County of Los Angeles Department of Health Services
Tuberculosis Control Program Standards

Targeted Skin Testing and Treatment of

Latent Tuberculosis Infection in Adults and Children

The following official LAC standards are based on CDC/ATS, California Tuberculosis Controllers Association, and California Department of Health Services, Tuberculosis Control Branch official guidelines

Recently published guidelines from the American Thoracic Society and Centers for Disease Control and Prevention have recommended a change in nomenclature. The terms "chemoprophylaxis" and "preventive therapy" will no longer be used. Instead, the phrase "treatment of latent tuberculosis infection (LTBI)" is recommended because it more accurately describes the intended intervention. This change in nomenclature will hopefully promote greater understanding of the concept for both patients and providers, resulting in more widespread use of this important tuberculosis (TB) control strategy. **(**see **Appendix 4 for Definitions and Abbreviations)**

Targeted TB Skin Testing

Targeted tuberculin skin testing for LTBI aims to identify individuals at high risk for TB who would benefit from treatment of LTBI. Persons for whom treatment of LTBI is indicated in this document are the same categories of persons who should be targeted for tuberculosis skin testing. Skin testing low risk populations will result in unnecessary testing and treatment because of false-positive test results.

High risk for developing TB disease is defined as:

(1) recent infection with *Mycobacterium tuberculosis*,
(2) the presence of clinical conditions that are associated with an increased risk of progression of LTBI to active TB (see **Appendix 1: Tables 1 and 2**) or
(3) increased morbidity if progression to TB disease occurs.

Definition of a positive tuberculin skin test

Previous vaccination with BCG is not a contraindication to tuberculin skin testing. Because most persons who have received prior BCG vaccination are from high prevalence areas of the world, previous vaccination should be ignored when interpreting a tuberculin skin test.

I. $\geq$ 5 mm of induration*****

A. Persons known or suspected to have HIV infection.

B. Recent contacts to an active case of pulmonary or laryngeal TB.

C. Persons with an abnormal chest radiograph consistent with TB disease.

D. Immunosuppressed individuals (See page 3 **Indications for Treatment of LTBI -TB2 and TB4**, VI-E)

***Note:** The California Department of Corrections considers all inmates high risk, and therefore treats for latent infection all inmates 5mm.

II. ≥ 10 mm of induration

All persons except those in I. above

Note: The CDC recommends using a 15 mm cutoff for low risk reactors. However, in California, public health departments do not recognize this cutoff because California is a high incidence state and the prevalence of nontuberculous mycobacterial infections is lower than other regions of the United States.

III. Tuberculin skin test conversion

TST conversion is defined as an increase of at least 10 mm of induration from < 10 mm to ≥ 10 mm within two years from a documented negative to positive TST.

Example: a TST of 4 mm that increases in size to 14 mm or more in induration would be considered a skin test conversion.

In some cases, the exact size (in mm) of the previous tuberculin skin test may not be known. In such cases, skin test conversion is defined as a change from a negative to positive tuberculin skin test within a 2-year period.

Evaluation for TB Disease - Symptom review and chest radiography

I. All persons who have a positive tuberculin skin test should undergo symptom review and have a chest radiograph.

A. If the radiograph is normal and the patient is asymptomatic, treatment of LTBI may be indicated (see **Appendix 2**).

B. If the radiograph is normal but the patient has a clinical presentation consistent with tuberculosis, further work-up is indicated and treatment of LTBI should be delayed until active tuberculosis has been ruled out.

II. Bacteriologic studies should be obtained for all persons with an abnormal chest radiograph consistent with tuberculosis even when the radiographic abnormalities appear stable. If bacteriologic studies are obtained, treatment of LTBI should not be initiated until final culture results are available.

Definition of persons eligible for treatment of LTBI (TB2 and TB4)

The following classes of persons are eligible for treatment of LTBI if they have not received a prior course of treatment for active TB or LTBI. In some cases, individuals may require another course of therapy if they have been exposed as a close contact to an infectious case of TB and have HIV/AIDS or are otherwise immunosuppressed.

I. TB2 - Tuberculosis infection, no disease:
Positive reaction to tuberculin skin test, negative bacteriologic studies (if done) and no clinical and/or radiographic evidence of tuberculosis.

II. TB4 - Tuberculosis, no current disease:

A. History of previous episode(s) of tuberculosis, or
B. Abnormal*, but stable, radiographic findings in a person with a positive tuberculin skin test, negative bacteriologic studies, and no clinical and/or radiographic evidence of current disease.

*Abnormal refers to radiographs with parenchymal abnormalities consistent with TB. It does not refer to isolated calcified granulomas or apical pleural thickening

Indications for Treatment of LTBI TB2 and TB4 (See **Appendix 2**)

Persons in the following categories including pregnant women, except when otherwise noted, should be treated if their tuberculin skin test is positive and they have not previously completed a course of therapy for tuberculosis or LTBI.

I. Persons known or suspected to have HIV infection, regardless of age.

II. Persons with an abnormal chest radiograph suggestive of tuberculosis and classified as a TB 4, regardless of age.

III. Recent close contacts to active pulmonary or laryngeal TB, regardless of age.

IV. Tuberculin skin test converters, regardless of age.

V. Persons from countries with high TB rates but no other risk factors, except for pregnant women.

A. Recent arrivals to the USA (arrived within the past 3 years or less), regardless of age.
B. Remote arrivals to the USA (resided continuously in the USA for more than 3 years), and are **NOT OVER 35 YEARS OF AGE.**

VI. Persons with the following conditions that have been associated with an increased risk of TB (See **Appendix 1, Tables 1 and 2**), regardless of age:

A. Injection drug use, regardless of HIV serostatus

B. Diabetes mellitus (especially insulin-dependent)

C. Silicosis

D. End-stage renal disease

E. Chronic immunosuppression

1. Transplant recipients

2. Prolonged corticosteroid therapy (15 mg/day for 1mo)

3. Other immunosuppressive therapy

F. Hematological and reticuloendothelial diseases

G. Malnutrition and clinical situations associated with rapid weight loss

1. Cancer of the head and neck
2. Intestinal bypass or gastrectomy
3. Chronic malabsorption
4. Low body weight (>10% below ideal body weight)

VII. Children and adolescents < 18 years of age exposed to adults with any of the above high risk characteristics, except if pregnant.

VIII. Residents and employees of the following high risk congregate settings: prison and jails, nursing homes, and other long-term facilities for the elderly, residential facilities for patients with AIDS, and homeless shelters; other homeless persons; employees of hospitals and other health care facilities **regardless of age.**

IX. Persons with a positive tuberculin skin test not in the above categories who abuse alcohol, cocaine, and intravenously injected drugs who are tested and have LTBI **regardless of age.**

X. All other

XI. All persons who are tested and have LTBI and are **NOT OVER 35 YEARS OF AGE**, except for pregnant women.

Indications for Treatment of LTBI - TB1 (TB exposure but negative skin test) (See **Appendix 2**)

Close Contacts

In close contacts to infectious cases, the initial tuberculin skin test may be negative despite underlying infection with *M.tuberculosis* if the TST is placed before the contact has mounted an immune response to the tuberculin antigen. It takes 2-12 weeks after infection with *M. tuberculosis* to develop a positive TST reaction.

Close contacts (TB1) to an infectious case, who have a tuberculin skin test < 5 mm, should have a chest radiograph obtained, and once TB disease is excluded, should be started on therapy for LTBI regardless of age **IF:**

I. Circumstances suggest a high probability of infection. For example, evaluation of other contacts with a similar degree of exposure demonstrates a high prevalence of infection, documented converters, or secondary cases.

II. The contact is a child under 5 years of age, or is infected with HIV, or is otherwise immune-compromised.

For those individuals who are started on therapy with a TST < 5 mm, a repeat tuberculin skin test should be performed 10 to 12 weeks after contact with the infectious case has been broken, or the index case becomes non-infectious, to determine if the skin test has become positive. Decision on continuing therapy should be made once the result of repeat skin testing is available.

Note: In HIV infected contacts; treatment should be completed, regardless of the result of the repeat skin test.

Treatment Regimens for LTBI

(See **Appendix 3,** for intervals and duration, drug dosages, and treatment completion criteria)

The standard regimen is isoniazid (INH) as a single drug.

I. INH alone:

A. 6 month regimen (minimum) for immune-competent adults. 9 month regimen if twice-weekly

B. 9 month regimen for children and adolescents (up to age 16 - 18)

C. 9 month regimen for HIV-infected persons or persons suspected of having HIV infection

D. 9 month regimen for TB 4 (See also **IV** below)

Alternative regimens for special circumstances.

II. RIF and PZA for 2 months:

Approval from the TB Control Program is required before using this regimen.

This regimen is not to be used except in HIV infected persons who are at very high risk for tuberculosis and unlikely to take 6 – 9 months of INH. Particular caution is necessary in patients taking other medications associated with livery injury, and those with a history of alcoholism even if alcohol use is discontinued during treatment. Rifampin/pyrazinamide is contra-indicated for persons with underlying liver disease or for those who have had isoniazid –associated liver injury. Rifampin/pyrazinamide must be given by directly observed therapy (DOT).

III. Rifampin alone for 6 months:

Treat persons exposed to cases with mono-resistance to INH or intolerance to INH with 6 months of RIF. A 2-month regimen of RIF and PZA is not recommended.

IV. INH and RIF (Rifamate) or RIF alone for 4 months for TB 4.

Although there have been no randomized studies to document the efficacy of this regimen in persons classified as a TB 4, there is a great deal of experience with this regimen in the public health sector. Give this regimen to TB suspects who have been started on treatment for TB but are later determined to be TB 4. The time for treatment as a suspect case should be included in the total 4 months recommended for treating LTBI.

V. Rifabutin may be substituted for rifampin in the above regimens in situations where rifampin cannot be given such as in HIV-infected persons taking certain protease inhibitors or non-nucleoside reverse transcriptase inhibitors. Dosage adjustments may, however, be necessary. TB Control should be consulted before making this substitution.

VI. Regimens for Contacts to Drug Resistant Cases

A. INH mono-resistant source case

Refer to III above.

B. Multidrug resistant source case

Persons exposed to a multidrug resistant case of TB require consultation with TB Control for expert advice concerning appropriate treatment.

Daily vs. Intermittent Dosing

INH may be given daily or twice weekly when treating LTBI. When INH is given twice weekly it must be given by DOT and the length of therapy should be a minimum of 9 months.

Intermittent therapy should not be used with a 2 month RIF and PZA regimen except under an approved protocol from TBC**.**

A. Directly Observed Therapy

Directly observed therapy (DOT) for LTBI should be used in circumstances where the risk of nonadherence is judged to be high, the risk of progression to active disease is high, or when the treatment regimens are given intermittently. New short course regimens and intermittent dosing may make DOT more feasible.

Monitoring for Drug Toxicity and Adherence

I. Baseline Evaluation

A. Baseline laboratory testing is not routinely indicated for all persons at the start of treatment for LTBI. Such testing may, however, be considered on an individual basis. Persons with the following high-risk characteristics are required to have baseline laboratory testing:

1. HIV infection
2. History of, or at risk of, chronic liver disease
3. Alcoholism
4. Taking other hepatotoxic medications
5. All persons over 35 years of age
6. Pregnant women and those in the immediate post-partum period (3 – 6 months)

B. The baseline laboratory tests will depend on which drug regimen is being used.

1. Isoniazid-containing regimen - In persons taking isoniazid, baseline measurements of serum AST or ALT and bilirubin are indicated.
2. Rifampin (or rifabutin) -containing regimen - In persons taking a rifamycin, baseline measurements of complete blood count and platelets are recommended, in addition to liver function tests.
3. Pyrazinamide-containing regimen - same as rifampin-containing regimen. A baseline uric acid level is not necessary unless the patient has a history of gout.

II. Evaluation During Treatment

A. Clinical Evaluation - Patients being treated for LTBI should receive a clinical evaluation at least monthly, regardless of the regimen used. The evaluation should include careful in person questioning of the patient about side effects associated with the medications, particularly hepatitis (e.g., anorexia, malaise, abdominal pain, fever, nausea, vomiting, dark urine, icterus). In addition, the patient should be asked about adherence and educated about the possible side effects of the medications.

No more than a one-month supply of medication is to be dispensed at a time.

B. Rifampin and pyrazinamide containing regimens may require more frequent monitoring. Liver function studies including a serum aminotransferase (AT) and bilirubin must be done at baseline, weeks 2, 4, and 6 of therapy. Asymptomatic serum AT increases are expected but do not require that treatment be stopped unless the AT level is greater than three times the upper limit of normal range in which case the regimen should not be resumed . Treatment should also be stopped and not resumed if any of the following findings occur: AT greater than normal range accompanied by symptoms of hepatitis, or serum bilirubin greater than normal whether symptoms are present or not. Rifampin/pyrazinamide must be given by DOT.

C. Routine laboratory monitoring during treatment of LTBI is indicated for those whose baseline liver function are abnormal, for persons at high risk of hepatic disease, or persons with symptoms of hepatitis. The frequency of this monitoring will vary depending on the person's risk of liver disease and the severity of the liver function test abnormalities.

Note: Pregnant women and those in the immediate post-partum period (within 3 - 6 months of delivery) *must* have repeat liver function tests measured monthly.

III. When To Stop Medications Due to Drug-induced Hepatitis

Medications should be stopped if the transaminase levels exceed **3** times the upper limit of normal. Medication should be held pending further clinical and laboratory evaluation**.**

Completion of Therapy

Completion of therapy should be based on the total number of doses administered not duration of therapy. If treatment is interrupted the recommended number of doses of the regimen should be provided within a certain maximum time period (See **Appendix 3**). The entire regimen should be restarted if interruptions were frequent or prolonged enough to preclude completion of doses in the time frames specified. When therapy is restarted after an interruption of more than 2 months, a medical examination to exclude active disease is indicated.

The standard in LAC when closing a patient being treated for LTBI to the TB Registry is to include the total number of medication doses received over a specific period of time.

Note: No set of standards can cover all individual treatment situations that can and will arise. Thus, when questions on individual situations not covered by these standards do arise, consult with LAC TB Control Program.

These standards have been approved and are in effect as of February 2001:

Signed:

Paul T. Davidson, M. D.
Director, Tuberculosis Control

James G. Haughton, M. D., MPH
Medical Director, Public Health

Shirley Fannin, M. D.
Director, Health Protection and
Disease Control, Communicable Disease Control

Signed copied on file – TB Control Program

VII. Suggested Readings

1. American Academy of Pediatrics. 2000. Tuberculosis. *In* Red Book: Report of the Committee on Infectious Diseases, 25th ed. American Academy of Pediatrics, Elk Grove Village IL.

2. American Thoracic Society / Centers for Disease Control and Prevention. Treatment of tuberculosis and tuberculosis infection in adults and children. Am J Respir Crit Care Med 1994; 149: 1359-1374.

3. American Thoracic Society / Centers for Disease Control and Prevention. Targeted skin testing and treatment of latent tuberculosis infection. Am J Respir Crit Care Med. 2000 161: S221-S247.

4. American Thoracic Society / Centers for Disease Control and Prevention. Diagnostic standards and classification of tuberculosis in adults and children. Am J Respir Crit Care Med 2000; 161:1376-1395.

5. Centers for Disease Control and Prevention. Notice to readers. Updated guidelines for the use of rifabutin or rifampin for the treatment and prevention of tuberculosis among HIV-infected patients taking protease inhibitors or nonnucleoside reverse transcriptase inhibitors. MMWR 2000; 49:185-189.

6. Center for Disease Control and Prevention. Update: Fatal and Severe Liver Injuries Associated With Rifampin and Pyrazinamide for Latent Tuberculosis Infection, and Revisions in American Thoracic Society/CDC Recommendations-United States, 2001 MMWR 2001; 50(34);733-5.

7. Zuber PLF, McKenna MT, Binkin NJ, Onorato IM, Castro KG. Long-term risk of tuberculosis among foreign-born persons in the United States. J.A.M.A. 1997; 278:304-307.

Appendix 1

High Risk Populations

Table 1. Incidence of Active TB in Persons with a Positive TST by Selected Factors

Risk Factor	TB Cases/1000 person-years
Infection > 2 years past	**1.6**
Infection < 1 year past	**12.9**
HIV Infection	**35.0-162.0**
Injection Drug Use	
HIV seropositive	**76.0**
HIV seronegative or unknown	**10.0**
Silicosis	**68**
Radiographic findings consistent with old TB	**2.0-13.6**

Source: American Thoracic Society/Centers for Disease Control and Prevention, 2000

Table 2. Certain medical conditions associated with an increased risk of developing TB

Medical Condition	Relative Risk
Solid organ transplant	
Renal	**37**
Cardiac	**20-74**
Jejunoileal bypass	**27-63**
Silicosis	**30**
Chronic Renal Failure/Hemodialysis	**10.0-25.3**
Carcinoma of head and neck	**16**
Gastrectomy	**2-5**
Diabetes mellitus	**2.0-4.1**

Source: American Thoracic Society/Centers for Disease Control and Prevention, 2000

Appendix 2

CANDIDATES FOR TREATMENT OF LATENT TUBERCULOSIS INFECTION (LTBI) (adapted from Charles P. Felton National TB Center)			
Category of person tested	TST <5 mm	TST ≥ 5 mm	TST ≥ 10 mm
(1) Recent Contact to TB Case[1]			
1. Child <5 years and recent contact[2]	TREAT	TREAT	TREAT
2. HIV-infected and recent contact[2]	TREAT	TREAT	TREAT
3. Immunosuppressed and recent contact[2]	TREAT	TREAT	TREAT
4. Other recent contact of TB case	Do Not Treat	TREAT	TREAT
(2) No Recent Contact to TB Case			
1. Fibrotic changes on chest X-ray[3]	Do Not Treat	TREAT	TREAT
2. HIV-infected	Do Not Treat	TREAT	TREAT
3. Injection drug user with unknown HIV status	Do Not Treat	TREAT	TREAT
4. Other immunosuppressed persons[4]	Do Not Treat	TREAT	TREAT
5. Foreign-born persons from endemic country[5]	Do Not Treat	Do Not Treat	TREAT
6. Injection drug user known to be HIV negative	Do Not Treat	Do Not Treat	TREAT
7. Resident/Employee institutional setting[6]	Do Not Treat	Do Not Treat	TREAT
8. Mycobacteria lab personnel	Do Not Treat	Do Not Treat	TREAT
9. High-Risk clinical conditions[7]	Do Not Treat	Do Not Treat	TREAT
10. Children < 18 years of age exposed to adults at high risk	Do Not Treat	Do Not Treat	TREAT
11. Other persons depending on local epidemiology and resources	Do Not Treat	Do Not Treat	TREAT

Note: If a person meets more than one criteria for treatment, the lower TST cut point for therapy should be used (i.e. an immigrant from a TB endemic country who has fibrotic changes on chest radiograph should be treated if the TST is ≥5 mm induration

[1]Recent contacts to active case of pulmonary or laryngeal TB.

[2]Recent contacts who are initially TST-negative should have a TST repeated 8-12 weeks after last exposure to TB case (see Text). Treatment can usually be discontinued after negative second TST in children. HIV infected adults and children, however, should receive full course of therapy regardless of TST result.

[3]Abnormal, stable, radiographic findings (parenchymal abnormalities consistent with TB, not isolated calcified granuloma or apical pleural thickening). Bacteriologic studies should be obtained for all persons with an abnormal chest radiograph consistent with TB even when the radiographic abnormalities appear stable. When bacteriologic studies are obtained, treatment of LTBI should not be initiated until final culture results are available.

[4]Transplant recipients, prolonged corticosteroid therapy (≥15 mg/day for ≥1 month), other immunosuppressive therapy

[5] Persons who have resided in the U.S. for over 3 years should receive treatment if they are not over 35 years of age.

[6]Residents and employees of the following high risk congregate settings: prisons and jails*, nursing homes and other long-term facilities for the elderly, residential facilities for patients with AIDS, homeless shelters; other homeless persons; employees of hospitals and health care facilities.

*The California Department of Corrections considers all inmates high risk, and therefore treats for latent infection all inmates ≥5mm.

[7]Silicosis, diabetes mellitus, chronic renal failure, some hematologic disorders (e.g. leukemias and lymphomas), other specific malignancies (e.g. carcinoma of the head and neck or lung), weight loss of ≥10% of ideal body weight, gastrectomy, jejunoileal bypass.

Pregnancy: Treat during pregnancy if either HIV-infected or recent *M.tb* infection.

Appendix 3

Recommended Drug Treatment Regimens For Treatment of LTBI

Drug	Interval & Duration	Adult Dose (max)	Pediatric Dose (max)	Criteria for Completion	Monitoring	Comments
INH	Daily for 6 mos	5 mg/kg (300 mg)		180 doses within 9 mos	Clinical monitoring monthly. Liver function tests[1] at baseline in selected cases[2] and repeat measurements if baseline tests are abnormal, patient is at high risk for adverse reactions, or patient has symptoms of hepatitis.	Preferred regimen for all immune-competent adults.
	Twice-weekly for 9 mos	15 mg/kg (900 mg)		76 doses within 12 mos		Alternate regimen for adults. DOT must be used with twice-weekly dosing
INH	Daily for 9 mos	5 mg/kg (300 mg)	10-20 mg/kg (300 mg)	270 doses within 12 mos		Preferred for children and HIV-infected adults. In HIV-infected patients, INH may be administered concurrently with NRTIs, protease inhibitors, or NNRTIs
	Twice-weekly for 9 mos	15 mg/kg (900 mg)	20-40 mg/kg (900 mg)	76 doses within 12 mos		Alternate regimen for children HIV-infected. DOT must be used with twice-weekly dosing
RIF plus PZA	Daily for 2 mos	RIF 10mg/kg (600 mg) PZA 15-20 mg/kg (2.0 g)	nr	60 doses within 3 mos	Clinical monitoring at baseline, weeks 2, 4, and 6. Liver function tests[1] at baseline and repeat measurements if baseline results are abnormal or patient has symptoms of adverse reactions. Requires TB Control approval Medications must be given by DOT.	Alternate regimen for HIV-infected adults unlikely to take 6-9 mos of INH. In HIV-infected patients, certain protease inhibitors or NNRTIs should not be administered concurrently with RIF; an alternative is rifabutin 300 mg daily.
RIF	Daily for 6 mos.	10 mg/kg (600 mg)	10-20 mg/kg (600 mg)	120 doses within 9 mos	Clinical monthly monitoring Complete blood count, platelets, and liver function tests[1] at baseline in selected cases[2] and repeated measurements if baseline results are abnormal or patient has symptoms of adverse reactions	For persons exposed to INH resistant, RIF susceptible TB and those who cannot tolerate INH.
INH plus RIF	Daily for 4 mos.	INH 5 mg/kg (300 mg) RIF 10mg/kg (600 mg)		120 doses within 6 mos	See INH and RIF	Alternate regimen for TB Class 4 (history of previous TB or abnormal but stable radiographic findings without evidence of active TB.)

Abbreviations: INH = isoniazid, RIF = rifampin, PZA = pyrazinamide, NRTIs = nucleoside reverse transcriptase inhibitors, NNRTIs = non-nucleoside reverse transcriptase inhibitors, DOT = directly observed therapy, mos. = months, nr = not recommended. **Pregnancy:** INH regimens preferred for pregnant women. Some experts would use RIF plus PZA as an alternate regimen in HIV-infected pregnant women. PZA should be avoided during the first trimester. **MDR-TB exposure**: For persons who are likely to be infected with INH and RIF (multi-drug) resistant TB and at high risk of reactivation, PZA and ethambutol or PZA and a fluoroquinolone are recommended depending on the sensitivities of the M. tb isolate. (Consult expert.)

[1] AST or ALT and serum bilirubin

[2] HIV Infection, history of liver disease, alcoholism, and pregnancy

Appendix 4

Definitions and Abbreviations

1. LTBI — Latent tuberculosis infection

2. TB1 — Tuberculosis exposure--no evidence of infection
   History of exposure
   Negative reaction to tuberculin skin test

3. TB2 — Tuberculosis infection--no disease
   Positive reaction to tuberculin skin test
   Negative bacteriologic studies (if done)
   No clinical, bacteriological, or radiographic evidence of current disease

4. TB3 — Tuberculosis disease--clinically active
   Mycobacterium tuberculosis cultured (if done)
   Clinical, bacteriological, or radiographic evidence of current disease

5. TB4 — Tuberculosis--not clinically active
   History of episode(s) of tuberculosis, or
   Abnormal but stable radiographic findings
   Positive reaction to the tuberculin skin test
   Negative bacteriologic studies (if done), and
   No clinical or radiographic evidence of current disease

6. TB5 — Tuberculosis disease suspected
   Diagnosis pending

7. CDC — Centers for Disease Control and Prevention

8. TST — Tuberculin skin test

9. LAC — Los Angeles County

10. DHS — Department of Health Services

11. TBC — Tuberculosis Control Program

12. DOT — Directly observed therapy

13. ATS — American Thoracic Society

Appendix I. Screening DHS Health Care Facility Workers for Tuberculosis

COUNTY OF LOS ANGELES

SUBJECT: **SCREENING DHS HEALTH CARE FACILITY WORKERS FOR TUBERCULOSIS**

POLICY NO. 212.1

PURPOSE

To develop a uniform policy and procedure for screening County health facility workers for tuberculosis (TB). This policy will serve to protect the health of both patients and employees.

To outline the responsibilities of facilities and their employees under said policy.

To ensure compliance with State and federal regulations.

POLICY

All health care facility employees shall be screened for TB at hire and shall be re-screened on a periodic basis thereafter. Results of this testing shall be documented in writing and placed permanently in the employee record. Facilities shall maintain records on their compliance with the policy.

PROCEDURES

1. Pre-employment

a. All applicants without a documented history of a positive Mantoux PPD skin test shall receive a Mantoux skin test at hire as a condition of employment. If positive, they shall be referred to their private physician or a County clinic for chest radiograph to screen for active disease. If the chest radiograph is abnormal, the applicant's private physician or County clinic shall administer further diagnostic tests and therapy as per ATS-CDC / LA TB Control guidelines prior to hire.

b. Applicants with a previous positive skin test shall document in writing proof of previous screening for active disease (and adequate therapy if indicated) as a condition of employment. An applicant who cannot provide such proof shall be referred to their private physician or a County facility for screening as in 1 above.

c. At hire, each employee shall be assigned at the cluster or network level to an employee health service for tracking of subsequent screening activities.

d. Personal Health Services (PHS) and Public Health Programs and Services (PHP&S) administration will assure that each employee health service has the resources to adequately track the employees for which it is responsible.

EFFECTIVE DATE: 1/1/95

SUPERSEDES: 212.1 (August 31, 1977)

APPROVED: [Signature on File]

2. Periodic screening

a. TB skin test negative employees

1) Employee health staff shall ensure that a Mantoux TB skin test is administered to all employees at least annually and to high risk employees every six months.

2) A licensed nurse or physician must administered and read the Mantoux skin test. The employee may choose either employee health or a personal provider to do so as long as the employee provides employee with documentation of the date and result of the Mantoux skin test.

b. Employees with TB skin test conversion

1) Employees with newly positive Mantoux skin test results require screening for active disease with a chest radiograph. If abnormal, additional information to rule out active disease is necessary before the employee may return to work.

2) If no active disease is detected, preventive treatment should be recommended regardless of age. Taking such treatment is voluntary.

c. TB skin test reactors (non-converters with positive TB skin tests)

1) All documented positive Mantoux skin test reactors must have an annual TB symptom assessment. A chest radiograph must be obtained if symptoms of active disease are present. If there are high risk medical or social factors (e.g., immuno-compromise, abnormal baseline chest radiograph), the employee must have an annual chest radiograph unless an adequate course of treatment or preventive therapy has been completed.

2) If no active disease is detected, employees 35 years of age or younger who have a positive Mantoux skin test should be offered preventive therapy. Those over age 35 should be offered preventive therapy if they have a high risk condition for developing tuberculosis as defined by ATS-CDC guidelines and/or the LA County Tuberculosis Program. Taking such treatment is voluntary.

d. Employee responsibility for reporting

1) All employees should be instructed at the time of TB screening to report any symptoms suggestive of tuberculosis to their immediate supervisor as soon as they occur.

3. BCG vaccination

a. A history of BCG vaccination is not a contraindication for Mantoux PPD skin test administration. An employee with a history of BCG should undergo the same periodic screening as any other employee depending upon the Mantoux skin test results.

4. Active disease

a. Employee health must refer all employees with active or suspected disease (Class III or V) to their private physician or a County clinic for further treatment and report them immediately to TB Control.

b. An employee with active disease may not work in County health care facilities until a physician and employee health certifies that the employee is not infectious as determined by infection control guidelines.

5. Maintenance of screening records

a. Employee health service must maintain records of TB screening in accordance with CalOHSA regulations (Title 22 Sec 70723 (c) and Title 8 Sec 3204(d)). This includes a list of all employees at the facility and other facilities for whom the employee health service is responsible, the date of the Mantoux skin test, the result of the skin test in mm of induration, and the interpretation of the results. If the Mantoux skin test is positive, the results of the chest radiograph must also be recorded.

b. Employee health services shall report summary statistics by work category to their infection control committees and TB control on a quarterly basis. These statistics shall include the number of employees eligible for screening, the number actually screened, the number of skin test conversions, and the number of active cases detected.

c. TB control or their designated representatives may review employee TB screening results and procedures by any facility to assist in maintaining high quality screening procedures and in investigating episodes of tuberculosis transmission.

6. Contract employees

a. Contract employees are subject to the same policies and procedures as other employees. Contract monitors shall ensure that all contracts contain appropriate language regarding tuberculosis testing. Network and cluster administrators shall assign responsibility for documenting screening at hire and subsequent tracking.

7. Volunteers

a. Volunteers are subject to the same policies and procedures as employees. They must register with the employee health service at the institution at which they volunteer. Network and cluster managers will make arrangements for TB testing volunteers at facilities with no employee health service.

8. Employee responsibilities

a. Employee health will report to their supervisors employees who do not comply with policies and procedures after two written requests. The employee's supervisor will sanction such employees with disciplinary actions.

9. Employee options regarding preventive treatment

a. Employees may choose to forego preventive treatment if offered, but they must sign a declination statement so indicating to be kept in their employee health service file. Employees may reverse their declination at any time. Employee health shall note in the employee's record that the employee has declined and been counseled as to the risks and benefits of such a decision. Preventive therapy is strictly voluntary on the part of the employee.

DEFINITIONS

Employee
Any person receiving compensation from the County of Los Angeles for any period throughout the quarter for work at a DHS health facility regardless of the number of hours worked.

Contract Employee
Any person who receives compensation from an employer other than the County of Los Angeles for work for any period throughout the quarter at a county health facility.

Volunteer
Any person who works without monetary compensation from any source for any period throughout the quarter at a County health facility.

County health facility
A facility devoted to the care of patients or to the production of services used for patient care. These facilities include but are not limited to hospitals, long term care facilities, comprehensive health centers, health centers, clinics, drug and alcohol treatment facilities, and laboratories.

High risk employees
As defined in CalOSHA regulations, employees with prolonged regular exposure to suspected TB cases in unprotected circumstances or those involved with high-risk procedures. Examples include but are not limited to: emergency room nurses and physicians, emergency medical technicians, respiratory therapists, laboratory personnel who manipulate know TB materials, and providers involved in the bronchoscopy of suspected TB cases. Facility Infection Control may designate other categories of employees as high risk based on local assessments.

Screening for active disease
At least a symptom review and chest radiograph. If the patient has an abnormal chest radiograph or signs or symptoms of active TB, it should also include a sputum smear, culture and sensitivities for acid fast bacilli, as well as other indicated medical evaluation and procedures.

Preventive treatment
At least 6 months of isoniazid in the dosage of 300 mg daily. Employees may choose to receive treatment at their employee health service or from a private provider so long as they provide the employee health service with adequate documentation. Other preventive medication may be indicated in certain individual circumstances.

Skin test for tuberculosis
The placement of 5 tuberculin units of purified protein derivative (PPD) intradermally by the Mantoux method. Multipuncture testing is inadequate. The injection site is examined 48-72 hours later.

Skin test positive
Any induration in the presence of know immunosuppression, 5 mm or greater induration for a known contact of an infectious or suspected case of tuberculosis, 10 mm or greater induration for all others.

Skin test negative
Any amount of induration less than that of a positive skin test.

Skin test converter
An individual with an increase of 10 mm in induration from the last measurement after a previously negative skin test administered less than 2 years previously.

Symptoms of active disease
Prolonged cough, sputum production, coughing up blood, weight loss, intermittent fevers, prolonged hoarseness, and prolonged fatigue.

AUTHORITY

Title 8, California Code of Regulations: Chapter 4, Subchapter 7, Section 5197, Subsections a through i (Prevention of Occupational Tuberculosis).

Appendix J. Incentives and Enablers Project Overview

TB Control Incentive/Enabler Project Overview

WHAT IS THE INCENTIVE/ENABLER PROJECT

The incentive/enabler project provides incentives and enablers to homeless and other indigent tuberculosis patients with suspected or confirmed TB disease and contacts to active TB cases in an effort to facilitate treatment completion.

WHAT TYPES OF SERVICES ARE AVAILABLE?

Housing, meals, transportation, and substance abuse rehabilitation are currently available. Upon request the TB Control Program **may** be able to satisfy specialized needs; such as shoes, clothing, and personal hygiene items. If special needs are identified, please contact the Incentive/Enabler (I/E) Coordinator/Designee.

WHO IS ELIGIBLE FOR THE SERVICES?

Services are available for **pulmonary**, **extra-pulmonary**, and **clinically diagnosed** tuberculosis patients. Eligibility does vary slightly according to incentive and/or enabler.

To be eligible for the housing provision the patient must:

- Be ambulatory and assessed to be homeless or at significant risk of becoming homeless;
- Be identified as a Class III or Class V ;
- Have 3 current, consecutive negative smears;
- Be placed on DOT; and
- Be willing to adhere to a DOT regimen.

To be eligible for the food provision the patient must be:

- Assessed to have a need for food provisions.
- Identified as a Class III or Class V;
- Placed on DOT; and
- Willing to adhere to a DOT regimen.

To be eligible for the transportation provision the patient must:

- Be identified as a Class III, Class V, or contact to an active TB case;
- Be placed on DOT;
- Be willing to adhere to a DOT regimen; and
- Have no other reliable or convenient means to get to clinical appointments or clinic-based DOT.

To be eligible for the substance abuse rehabilitation services the patient must:

- Be at least 18 years-old;
- Be an identified or admitted substance abuser;
- Be sober for at least 24 hours prior to admission;
- Be identified as a **current**, **non-infectious** Class III or Class V;
- Have the ability to perform light duty work;
- Have **at least** 90 days of tuberculosis treatment left before completion; and
- Be willing to voluntarily admit himself/herself to the Antelope Valley Rehabilitation Centers substance abuse program.

WHAT IS THE DISTRICT HEALTH CENTER'S ROLE?

- Assess the patient's need for a specific or multiple incentive and/or enabler.
- Fully complete the I/E application form (**see Appendices for TBC-IEP-A FORM**).
- Fax the application to the I/E Coordinator/Designee and **wait to receive approval from TBC** before distributing incentives/enablers.
- Once the housing request is approved by TBC use the telephone number listed on the housing voucher to contact housing site manager to verify bed availability. Distribute the appropriate housing voucher and arrange transportation to housing site.
- Once the requests for transportation services and food provisions are approved by TBC distribute requested items accordingly.
- **Designate a district staff member to be responsible for ordering food coupons and bus tokens and passes.**
- Complete monthly token and McDonald's coupon logs.
- Complete and distribute housing and food vouchers.
- Submit monthly program logs to I/E Coordinator/Designee.
- **Notify I/E Coordinator when services are stopped.**

WHAT IS THE JAIL/HOSPITAL LIAISON ROLE?

(1) The Jail Liaison nurse should do the following:

For patient being released to a health district:

- Notify DPHNS regarding the patient's release (**when known in advance**).
- Inform DPHNS of the patient's identified need for I/E project services.
- Submit to DPHNS all pertinent treatment and bacteriology reports.

For a patient being released to a substance abuse program:

- Coordinate approval for admission to the Antelope Valley Rehabilitation Centers (**AVRC**) with I/E Coordinator/Designee.
- Fax an application (s**ee Appendices for** f**orm TBC-IEP-A**) to the I/E Coordinator/Designee.
- Contact Supervising PHI at TBC for transportation of patient to AVRC upon receiving approval from I/E Coordinator for admission.

(2) The Hospital Liaison Nurse should do the following:

For patient being discharged to a health district:

- Assess the patient's need and desire for incentives and/or enablers.
- Notify DPHNS of the patient's need at least **48** hours prior to discharge.
- Fax the DPHNS the latest copy of the H-1365 and H-1397.

For a patient being discharged to a substance abuse program:

- Coordinate approval for admission to AVRC with I/ E Coordinator/Designee.
- Fax an application (**see Appendices for TBC-IEP-A FORM**) to the I/E Coordinator/Designee.
- Contact TBC for the coordination of patient's transportation to AVRC upon receiving approval.

WHAT IS THE ROLE OF THE DISTRICT COMMUNITY WORKER?

Community Workers play a **key** role in the monitoring of patient adherence. When patients fail to adhere to the conditions for receipt of incentives and/or enablers the District Community Worker takes initial corrective action. For instance, the Community Worker should notify the Clinic or DOT nurse if the patient misses **1** field DOT appointment, refuses to take prescribed DOT, and/or is unable to locate (**UTL**). The DPHN should notify the I/E Coordinator/Designee if the patient misses 3 or more DOT dosages in a given month. If the patient is failing to adhere to the vendor's rules and regulations, the Community Worker should counsel the patient and inform him/her that their voucher can be revoked. The DPHN should be informed every time that the community worker counsels the patient. Likewise, the DPHN should inform the I/E Coordinator/Designee.

WHAT IS THE APPLICATION PROCESSING TIME?

Once the I/E Coordinator/Designee receives the application she/he will review it and confirm the patient's eligibility and the availability of the incentive and/or enabler being requested. The district will be notified within **24 hours** of the application's status. After the application has been approved or denied it will be faxed to the attention of the requestor in the district. A follow-up call will be made to the requestor to ensure receipt.

WHAT IS THE TIMEFRAME BETWEEN APPLYING FOR THE BUS PASS IDENTIFICATION CARD AND THE PATIENT RECEIVING IT?

The processing time for the Bus Pass Identification Card is **approximately 60 calendar days.** In some instances, the processing time can take longer than 60 days. TBC will make every effort to expedite the process.

WHERE CAN I HOUSE A PATIENT IF THERE ARE NO HOUSING VENDORS IN MY DISTRICT?

Contact the I/E Coordinator/Designee at TB Control. She/He will facilitate identifying a housing site in an alternate health district that has a housing vendor. The patient would then become a courtesy case in the district where housing is provided.

HOW DO I HANDLE A PATIENT COMPLAINT AGAINST THE VENDOR?

Completely document the issue on the I/E Project complaint form (**see Appendices for TBC-IEP-C FORM**). Fax the form to the I/E Coordinator/Designee. She/He will work to resolve the issue and provide the DPHN with feed back on results. Vendors may use the same form to document a complaint on a patient.

WHAT INCENTIVES AND ENABLERS ARE AVAILABLE FOR CONTACTS?

Patients who are contacts to active TB cases may receive tokens for transportation or be transported by TBC vehicle assigned to SPA or District Health Center as necessary. Additionally, if any contact is placed on directly observed preventative therapy (**DOPT**) he/she may receive the amount of tokens that are needed to provide transportation to and from clinical DOPT appointments.

Appendix K. TB Screening Requirements for Schools and Day Care Centers in Los Angeles County

LOS ANGELES COUNTY – DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH PROGRAMS – TB CONTROL PROGRAM

TB SKIN TEST REQUIREMENTS

Who Needs a TB Skin Test?

Students who have **never** attended a California school must present written evidence of a Mantoux (PPD) skin test. ***Multiple puncture tests (tine tests or four-prong tests) are not acceptable.***

1. All Kindergarten students must be tested within 1 year prior to the date of school entry. *This does not affect preschool or day care as these settings have their own TB skin testing requirements.*

2. Those students in Grades 1-12 who have never attended any school in California. *Please Note:*
   a. *This test could have been performed at any previous time.*
   b. *If the student previously attended any California school (public, private, or parochial), the student is exempt from this requirement.*

What Does a Student Bring to School? *

A written form from the doctor or health facility with the following information:

1. Type of test. Mantoux (PPD) test only. ***Multiple puncture tests are not acceptable.***

2. Date of test administration. (Date of test reading is optional, but not necessary.)

3. Skin Test Results.

   a. The skin test reading must be done by a health care provider.
   b. A reading of "negative result" is acceptable if the induration is less than 10 mm in diameter.
   c. If the skin test result is 10 mm or more of induration (positive test result), then written indication of x-ray date and/or statement that the child is free of communicable TB is required.

4. Signature of doctor or designee.

* California State Immunization Record contains all of the above information.

Please Note:
1. A chest x-ray instead of a skin test is not acceptable unless the doctor medically waives the skin test.
2. A student with a history of BCG vaccination must have a skin test unless the doctor certifies in writing that the child is free of communicable tuberculosis.
3. A child age 12 or older may sign his/her own consent for TB skin test or chest x-ray.
4. The Mantoux test should be given prior to, or simultaneously with, any measles containing vaccine. If a measles containing vaccine has already been given, the Mantoux should be deferred for 1 month as this may cause a false negative result. The child should be admitted to school conditionally for that month.
5. A child with a positive skin test can be admitted to school conditionally for up to 20 school days while awaiting chest x-ray clearance.

For questions, please call the Tuberculosis Control Program at (213) 744-6160

Revised February 2002

TUBERCULOSIS SCREENING RECOMMENDATIONS FOR SCHOOLS AND CHILD DAY CARE FACILITIES IN LOS ANGELES COUNTY

This synopsis represents recommended guidelines for implementing the following laws: Education Code (Section 49406), Health and Safety Code (Sections 1596.70, 3450-3451), California Administrative Code, Title 17 (Section 6607), Title 22 (Sections 41301, 1012.16).

Institution, Agency, or Facility	Initial Examination	Repeat Examination	Examination To Consist Of:
SCHOOL & CHILD DAY CARE FACILITIES (Includes Nursery Schools, Day Nurseries, and Development Centers) Employees – All employees and volunteers in public, private, and parochial schools for K-12 and child care facilities. Exceptions may be made for volunteers who are not in frequent or prolonged contact with students/children.	Employees Within 60 days prior to employment. NOTE: School governing authority can require more frequent or more extensive examinations.	Employees with negative skin tests: Repeat skin test every 4 years. Employees wth positive skin tests: Must furnish a certificate from a health provider every 4 years showing that employee is free from active TB. A chest x-ray is NOT required in those who completed preventive therapy OR have a negative history & symptom review. A file must be kept on all employees who convert their skin test to positive on repeat examination. This file must be surrendered to TB Control Officer upon request.	Intradermal Mantoux 5 TU (tuberculin units) PPD skin test which, if positive (10 mm, or more induration) must be followed by a chest x-ray. If there are clinical reasons for suspecting that the person may have tuberculosis or if the person is a known contact to a case of tuberculosis, 5 mm of induration is considered positive. Employees must have on file a certificate from the examining physician showing that the employee is free from active disease. NOTE: Any employee with a positive skin test where active disease has been ruled out should be considered for preventive therapy.
Students in K-12 1. All kindergarten and 1st grade students who **never** attended kindergarten anywhere. 2. All other students who never attended any school in California.	Students in K-12 1. Within 1 year prior to school admission. 2. Any previous date.	Students in K-12 1. None 2. None	Same as school employees. Students must present written documentation upon enrollment. Any tuberculin test may be used. EXCEPTIONS: 1. A Mantoux test is a requirement to enter Kindergarten. 2. A positive multipuncture reaction should be validated by a Mantoux test.
Students/Children in Licensed Child Day Care Facilities NOTE: If child is also enrolled in public, private, or parochial school, there is no requirement for documentation of medical assessment by the child care facility.	Students/Children in Licensed Child Day Care Facilities Required only if the child's medical assessment indicates that the child has risk factors for TB. * All children must be screened for risk factors for TB as part of the medical assessment. Skin testing is required only if determined to be necessary by a physician based on the child's risk of TB. Mantoux to be done not more than one year prior to or within 30 days following the acceptance of a client.	Students/Children in Licensed Child Day Care Facilities None required. Only subsequent enrollment in a different facility would necessitate a repeat examination if the previous test is more than one year old.	If required: Same as school employees. Written documentation must be provided. *RISK FACTORS FOR TB IN CHILDREN: • Have a family member or contact with a history of confirmed or suspected TB. • Are in foreign-born families and from high-prevalence countries in Asia, Africa, Latin America, Middle East, Eastern Europe. • Live in out-of-home placements. • Have, or are suspected to have, HIV infection. • Live with an adult with HIV seropositivity. • Live with an adult who has been incarcerated in the last five years. • Live among, or are frequently exposed to, individuals who are homeless, migrant farm workers, users of street drugs or residents in nursing homes. • Have abnormalities on chest X-ray suggestive of TB. • Have clinical evidence of TB.

NOTE: If a skin test is positive in a child 3 years of age and under, the Health Office must be informed.
NOTE: Administration of facility can require more extensive or more frequent examinations.

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES PUBLIC HEALTH	TUBERCULOSIS CONTROL PROGRAM ANNETTE T. NITTA, M.D. DIRECTOR	Telephone: (213) 744-6160 Facsimile: (213) 749-0926 Website: www.lapublichealth.org/tb/

LOS ANGELES COUNTY – DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH PROGRAMS – TB CONTROL PROGRAM

UPDATE ON TUBERCULOSIS SKIN TESTING

The incidence of tuberculosis (TB) disease has increased dramatically in Los Angeles County since 1988. The causes of this increase are many, such as: Human Immunodeficiency Virus (HIV) disease, homelessness, poverty, and the large numbers of persons immigrating to this geographic area from countries with high incidence of TB. Due to the increase in the number of TB cases, the Los Angeles County Department of Health Services has continued to mandate skin tests for first-time school entrants. In addition, California regulations were updated in 1987 to reflect current policies for the screening of school personnel.

To assist the reader, this article will respond to the most frequently asked questions regarding TB skin testing for school students:

GENERAL QUESTIONS	ANSWERS
What does a positive TB skin test result mean?	A positive TB skin test means that a person has been exposed to TB germs (bacteria) at sometime during his/her life. It does not indicate that a person has TB disease or is contagious.
When should a TB skin test be examined (read or checked)?	The tuberculin skin test should be examined (or read) 48 to 72 hours after it is administered. It is acceptable to read the Mantoux skin test up to 96 hours after administration if it is not possible to do so earlier. After 96 hours, a skin test reading of less than 10 mm of induration should be repeated. A skin test reading of 10 mm or more is positive at any time.
Should a person who had a BCG vaccination get a TB skin test?	Yes. Not all BCG vaccinations are effective. A history of BCG vaccination does not exempt students or school employees from the skin test.
What is TB infection?	A person with a positive skin test and normal (negative) chest X-ray has TB infection. This means that the person's immune system has been able to fight the TB bacteria to prevent them from growing. TB infection is **NOT** contagious.
When is TB contagious?	TB can be contagious in adolescents and adults who are coughing, have a positive skin test, and an abnormal (positive) chest X-ray. TB medications will make the person non-contagious very quickly. Because of the efficiency of TB medicines, patients are not quarantined and are usually able to return to school or work within several weeks.
Are children with active TB contagious?	Children under the age of 12 rarely have contagious TB. This is because they have TB in a different area in the lung and do not aerosolize or cough up their germs into the air. It is for this reason that the Los Angeles County Department of Health Services has been instructed to check the immunization record on these children as being "free of communicable TB" on the day that the chest X-ray is taken.
If a student or staff member is found to have active TB, what does the County Health Department do?	Not all TB is contagious. If the County Health Department determines that the student or staff member is contagious, he/she will not be allowed to remain in school, and the persons sharing the air space with this person will be tested for TB. The student or staff member will not be allowed back to school until he/she is no longer contagious.
I read about this new strain of TB where the drugs do not work. Am I in danger of getting this?	There really is not a new strain. There have always been people with TB in which some of the medicines do not work. If this is the case, we use additional medicines and give them for a longer period of time. Cases where medicines are not completely effective are uncommon in Los Angeles County.

QUESTIONS REGARDING CHILDREN	ANSWERS
In Los Angeles County, what students must have a TB test?	At enrollment, all kindergarten entrants and all students in grades 1-12 who never previously attended a California school. They must provide written documentation of a TB skin test using the Mantoux technique. Kindergarten entrants must have had this test within the year prior to the first day of school.
My child attended school in California and left the country for several years. Does he/she need a TB skin test when he/she returns?	No. Students who previously attended a California school are exempt from the requirement, even if they have never had a skin test.
My child is transferring from another school within California. Does he need a skin test when he returns?	No. Students entering at any grade level from any other California school (public, private, or parochial) are exempt from the requirement even if they never received a skin test.
May my child attend school with a new positive skin test?	Yes. A student may enter school after the skin test is read by the school nurse or the family's health care provider in the community. A student can be conditionally admitted for up to 20 school days until a negative chest X-ray result or a notation from the family's health care provider is received stating that the student is "free of communicable TB". If the school does not receive the documentation, the child may be excluded from school.
In the past, my child had a positive skin test and/or took medication for TB prescribed by our doctor. What do I need to bring to school to allow him/her to be enrolled?	A child with a previous positive skin test must bring documentation from a health care provider of previous results of skin test, chest X-ray, treatment if any, and a current statement from a health care provider that he/she is "free of communicable TB".
It is against my personal beliefs for my child to have a TB skin test. May my child still enter school?	Yes. Personal belief exemptions are allowed. The parent may sign the personal belief statement on the back of the California School Immunization Record (CSIR) card.
QUESTIONS REGARDING EMPLOYEES/VOLUNTEERS	**ANSWERS**
What type of TB screening must school employees undergo?	The Mantoux Tuberculin Skin Test is the only acceptable method of TB screening for school employees.
Which school volunteers need a TB test?	Volunteers who have <u>repeated</u> contact with students in the classroom setting must meet the same criteria for TB testing as school staff members. Exception: Volunteers who come in to assist with <u>one</u> <u>time</u> activities, such as: clerical functions, supervising field trips or dances, do not have sufficient contact with students or staff to constitute a risk.
How often does a TB test have to be repeated?	If you have a negative skin test, you need a repeat test at least once every four years. If you have a documented positive skin test, you must have an initial chest X-ray. After that, you still need to be screened every four years. You must present, either a certificate from a health care provider stating that you are "free from communicable TB", or have your chest X-ray repeated.
Why are not people who work with children (teachers, school aides, etc.) required to have TB screening more often?	Minimum state regulations require TB screening once every 4 years. School staff members may request TB testing more frequently from their health care provider, but school districts are not required to provide it more than once every 4 years.
I had a positive TB skin test many years ago, but I can't find my records. Why can't I just get a chest X-ray?	If you <u>cannot</u> <u>document</u> in writing a previous positive skin test (from your own records or your physician), you will have to get another skin test. Only the Mantoux skin test will demonstrate TB infection.

Remember:

- People who have a positive TB skin test with a normal chest X-ray are **<u>NOT</u>** contagious, but may need medicine to prevent them from ever getting active TB disease.
- Children under the age of 12 with active TB disease are rarely contagious, and they do not need to be kept out of school.

If you have <u>any</u> questions please call the Nurse Consultation Unit at the Los Angeles County Department of Health, Tuberculosis Control Program, (213) 744-6160.

COUNTY OF LOS ANGELES
DEPARTMENT OF HEALTH SERVICES
Public Health

THOMAS L. GARTHWAITE, M.D.
Director of Health Services and Chief Medical Officer

JONATHAN E. FIELDING, M.D., M.P.H.
Director of Public Health and Health Officer

Tuberculosis Control Program

ANNETTE NITTA, M.D., Director
2615 South Grand Avenue, Room 507
Los Angeles, California 90007
TEL (213) 744-6160 ℄ FAX (213) 749-0926

www.lapublichealth.org

DATE: September 9, 2002

TO: All Public Schools

FROM: Annette Nitta, M.D.
Director, TB Control Program

SUBJECT: **TUBERCULOSIS (TB) SKIN TEST SCHOOL MANDATE REPORTING**

We are now in the eighteenth year of TB Skin Test School Mandate Reporting in Los Angeles County. As you know, the California Administrative Code, Title 22, Division 22, Chapter 9, Sections 41301-41329, was passed in 1980, authorizing the Local Health Officer to mandate TB Screening of school children. In 1985, Tuberculosis Skin Test School Mandate Reporting began in Los Angeles County and has continued to date. The purpose of the school mandate is to measure annual TB infection rates in the school-aged population and identify children who are candidates for treatment of latent TB infection.

The most recent data from the 2000-2001 school year for the TB Skin Test School Mandate Reporting shows that 143,556 children enrolled in grades K-12 were reported to have undergone TB skin testing. Of those children tested, 3.5% were TB Skin Test positive. During the subsequent evaluation of the children who were screened, 26 were found to have active tuberculosis and 65 were identified as TB suspect cases. Thus, in addition to identifying children who were candidates for treatment of latent TB infection, TB Skin Test School Mandate Reporting identified a total of 91 children in the school year 2000-2001 who had active or suspected TB disease. Had they not been screened under the TB Skin Test School Mandate, these children might otherwise have had their diagnosis delayed.

Enclosed, please find a copy of the Tuberculosis Skin Test Mandate Report Form, a double-sided flyer outlining TB Skin Test Requirements and screening recommendations, a double-sided TB Update containing answers to frequently asked questions, and a sample Report Form. The Report Form should be completed by every school in Los Angeles County (public, private, and parochial).

The school mandate applies (1) to all students entering Kindergarten and (2) to those students in Grades 1 though 12 who have never attended any school in California. This includes: students entering Grade 1 who skipped Kindergarten; students who have never attended school before; and students who are transferring into Grades 1-12 at Los Angeles County schools from schools in other states and other countries between November 1, 2001 and October 31, 2002. Information should be included for all students covered by the mandate who are enrolled for the 2002-2003 school year.

If you have any questions regarding the TB Skin Test Requirements, please contact a TB Nurse at (213) 744-6160. Please direct all questions regarding the mandate requirements or the Report Form completion to the School Mandate Coordinator at (213) 744-6160.

The TB Skin Test School Mandate Report Form must be forwarded to the Health Coordinator at the School District Office by Friday, November 15, 2002. Thank you for your cooperation.

ATN: cll
Enclosures

TUBERCULOSIS SKIN TEST REPORT FORM
SCHOOL MANDATE 2002-2003
PUBLIC SCHOOLS

DISTRICT/SCHOOL CODE:
School Name:
Address:
City:
Zip Code:

ADDRESS CORRECTIONS:
School Name:
Address:
City:
Zip Code:

INSTRUCTIONS: (Complete the table below to report the TB SKIN TEST results for your school)

1. For each grade level Kindergarten through Grade 12 (indicated on the left column of the table below), please report the NUMBER of positive and negative skin test results for each category, U.S. born or Foreign born (columns A, B, C, and D). Please enter zeroes where appropriate.
2. Please report the NUMBER of waivers * (both medical waivers and personal/religious belief waivers) in the appropriate column in the table below (column E). Please enter zeroes where appropriate.
3. Please indicate the **TOTAL ENROLLMENT OF KINDERGARTENERS ONLY** (column F). The sum of the number of Kindergarteners tested or with waivers **MUST** equal the total Kindergarten enrollment. [A + B + C + D + E = F]
4. **REMEMBER:** Only the **Mantoux Skin Test** is acceptable. **Multiple Puncture Tests** are unacceptable for the School Mandate.
5. **Students covered under the Tuberculosis Skin Test School Mandate:**
   - ALL Kindergarten students must have a Mantoux TB Skin Test within one year prior to the first day of school. (Pre-school students should not be included on this table. Pre-school and day-care facilities have their own requirements.)
   - NEW students in grades 1-12 who have never previously attended a California school must show proof of a Mantoux TB Skin Test from any previous time. (Transfer students from within California or Los Angeles County are not required to have a TB Skin Test).
   - For students transferring into your school after the start of the school year, please include those who enroll in your school on or before October 31, 2002. Students who enroll after the cut-off date of October 31, 2002, should not be included on your school's Report Form, as they will be included on the previous school's Report Form.
6. Pending results require urgent follow-up and cannot be reported without a result.
7. If no students are eligible for the mandate, please check the appropriate box on the table and return the form.
8. If your school uses age groups instead of grade levels, estimate the grade level based on age and fill-in the appropriate row for that grade.
9. **Please list your name, title, telephone number, and e-mail address** below the table.

If no students are covered by the 2002-2003 TB Skin Test Mandate, check this box:						
Grade Level	**U.S. Born Tested**		**Foreign Born Tested**		**Number of Waivers * (E)**	**Total K Enrolled (F)**
	Positive Result (A)	**Negative Result (B)**	**Positive Result (C)**	**Negative Result (D)**		
K (all students)						
1 (If new to CA)						N/A
2 (If new to CA)						N/A
3 (If new to CA)						N/A
4 (If new to CA)						N/A
5 (If new to CA)						N/A
6 (If new to CA)						N/A
7 (If new to CA)						N/A
8 (If new to CA)						N/A
9 (If new to CA)						N/A
10 (If new to CA)						N/A
11 (If new to CA)						N/A
12 (If new to CA)						N/A

Name of person completing form: _____ Title: _____
Area Code & Telephone Number: _____ E-mail address: _____
Facsimile (Fax) Number: _____

- Attention school staff:
  Please send your school's completed report form by NOVEMBER 15, 2002 to the School District Nursing Coordinator.
- Attention School District Nursing Coordinator: **Please forward the completed report forms by DECEMBER 13, 2002 to:**
  Clovia Lee, M.P.H., School Mandate Coordinator
  Tuberculosis Control Program
  2615 S. Grand Avenue, Room 507
  Los Angeles, CA 90007-2608

➔ For questions regarding extracting information from the school computer please contact your district office.
➔ For questions regarding completing this form, please call the School Mandate Coordinator at TB Control: 213-744-6160.
➔ For questions regarding the TB Skin Test, please call the TB Nurse at TB Control: 213-744-6160.

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2615 South Grand Avenue, Room 507
Los Angeles, California 90007
TEL (213) 744-6160 ℃ FAX (213) 749-0926

www.lapublichealth.org

DATE: September 9, 2002

TO: All Private Schools

FROM: Annette Nitta, M.D.
Director, TB Control Program

SUBJECT: **TUBERCULOSIS (TB) SKIN TEST SCHOOL MANDATE REPORTING**

We are now in the eighteenth year of TB Skin Test School Mandate Reporting in Los Angeles County. As you know, the California Administrative Code, Title 22, Division 22, Chapter 9, Sections 41301-41329, was passed in 1980, authorizing the Local Health Officer to mandate TB Screening of school children. In 1985, Tuberculosis Skin Test School Mandate Reporting began in Los Angeles County and has continued to date. The purpose of the school mandate is to measure annual TB infection rates in the school-aged population and identify children who are candidates for treatment of latent TB infection.

The most recent data from the 2000-2001 school year for the TB Skin Test School Mandate Reporting shows that 143,556 children enrolled in grades K-12 were reported to have undergone TB skin testing. Of those children tested, 3.5% were TB Skin Test positive. During the subsequent evaluation of the children who were screened, 26 were found to have active tuberculosis and 65 were identified as TB suspect cases. Thus, in addition to identifying children who were candidates for treatment of latent TB infection, TB Skin Test School Mandate Reporting identified a total of 91 children in the school year 2000-2001 who had active or suspected TB disease. Had they not been screened under the TB Skin Test School Mandate, these children might otherwise have had their diagnosis delayed.

Enclosed, please find a copy of the Tuberculosis Skin Test Mandate Report Form, a double-sided flyer outlining TB Skin Test Requirements and screening recommendations, a double-sided TB Update containing answers to frequently asked questions, and a sample Report Form. The Report Form should be completed by every school in Los Angeles County (public, private, and parochial).

The school mandate applies (1) to all students entering Kindergarten and (2) to those students in Grades 1 though 12 who have never attended any school in California. This includes: students entering Grade 1 who skipped Kindergarten; students who have never attended school before; and students who are transferring into Grades 1-12 at Los Angeles County schools from schools in other states and other countries between November 1, 2001 and October 31, 2002. Information should be included for all students covered by the mandate who are enrolled for the 2002-2003 school year.

If you have any questions regarding the TB Skin Test Requirements, please contact a TB Nurse at (213) 744-6160. Please direct all questions regarding the mandate requirements or the Report Form completion to the School Mandate Coordinator at (213) 744-6160.

The TB Skin Test School Mandate Report Form must be forwarded to the School Mandate Coordinator at the Los Angeles County Tuberculosis Control Program office by Friday, November 8, 2002. Thank you for your cooperation.

ATN: cll
Enclosures

TUBERCULOSIS SKIN TEST REPORT FORM
SCHOOL MANDATE 2002-2003
PRIVATE SCHOOLS

DISTRICT/SCHOOL CODE:
School Name:
Address:
City:
Zip Code:

ADDRESS CORRECTIONS:
School Name:
Address:
City:
Zip Code:

INSTRUCTIONS: (Complete the table below to report the TB SKIN TEST results for your school)

1. For each grade level Kindergarten through Grade 12 (indicated on the left column of the table below), please report the NUMBER of positive and negative skin test results for each category, U.S. born or Foreign born (columns A, B, C, and D). Please enter zeroes where appropriate.
2. Please report the NUMBER of waivers * (both medical waivers and personal/religious belief waivers) in the appropriate column in the table below (column E). Please enter zeroes where appropriate.
3. Please indicate the **TOTAL ENROLLMENT OF KINDERGARTENERS ONLY** (column F). The sum of the number of Kindergarteners tested or with waivers **MUST** equal the total Kindergarten enrollment. [A + B + C + D + E = F]
4. **REMEMBER:** Only the **Mantoux Skin Test** is acceptable. **Multiple Puncture Tests** are unacceptable for the School Mandate.
5. **Students covered under the Tuberculosis Skin Test School Mandate:**
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   - For students transferring into your school after the start of the school year, please include those who enroll in your school on or before October 31, 2002. Students who enroll after the cut-off date of October 31, 2002, should not be included on your school's Report Form, as they will be included on the previous school's Report Form.
6. Pending results require urgent follow-up and cannot be reported without a result.
7. If no students are eligible for the mandate, please check the appropriate box on the table and return the form.
8. If your school uses age groups instead of grade levels, estimate the grade level based on age and fill-in the appropriate row for that grade.
9. **Please list your name, title, telephone number, and e-mail address** below the table.

If no students are covered by the 2002-2003 TB Skin Test Mandate, check this box:						
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12 (If new to CA)						N/A

Name of person completing form: _____ Title: _____
Area Code & Telephone Number: _____ E-mail address: _____
Facsimile (Fax) Number: _____

- Attention school staff:

Please send your school's completed report form by NOVEMBER 8, 2002 to:
Clovia Lee, M.P.H., School Mandate Coordinator
Tuberculosis Control Program
2615 S. Grand Avenue, Room 507
Los Angeles, CA 90007-2608
Tel. (213) 744-6160, Fax (213) 749-0926

➔ For questions regarding completing this form, please call the School Mandate Coordinator at TB Control: 213-744-6160.
➔ For questions regarding the TB Skin Test, please call the TB Nurse at TB Control: 213-744-6160.

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DEPARTMENT OF HEALTH SERVICES
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2615 South Grand Avenue, Room 507
Los Angeles, California 90007
TEL (213) 744-6160 ¢ FAX (213) 749-0926

www.lapublichealth.org

DATE: September 9, 2002

TO: All LAUSD Schools

FROM: Annette Nitta, M.D.
Director, TB Control Program

SUBJECT: **TUBERCULOSIS (TB) SKIN TEST SCHOOL MANDATE REPORTING**

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Enclosed, please find a copy of the Tuberculosis Skin Test Mandate Report Form, a double-sided flyer outlining TB Skin Test Requirements and screening recommendations, a double-sided TB Update containing answers to frequently asked questions, and a sample Report Form. The Report Form should be completed by every school in Los Angeles County (public, private, and parochial).

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If you have any questions regarding the TB Skin Test Requirements, please contact a TB Nurse at (213) 744-6160. Please direct all questions regarding the mandate requirements or the Report Form completion to the School Mandate Coordinator at (213) 744-6160.

The TB Skin Test School Mandate Report Form must be forwarded to the LAUSD Nursing Coordinator at each Local District by Friday, November 8, 2002. Thank you for your cooperation.

ATN: cll
Enclosures

TUBERCULOSIS SKIN TEST REPORT FORM
SCHOOL MANDATE 2002-2003
L.A. UNIFIED SCHOOLS

DISTRICT/SCHOOL CODE:
School Name:
Address:
City:
Zip Code:

ADDRESS CORRECTIONS:
School Name:
Address:
City:
Zip Code:

INSTRUCTIONS: (Complete the table below to report the TB SKIN TEST results for your school)

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9. **Please list your name, title, telephone number, and e-mail address** below the table.

If no students are covered by the 2002-2003 TB Skin Test Mandate, check this box:						
	U.S. Born Tested		Foreign Born Tested		Number of Waivers * (E)	Total K Enrolled (F)
Grade Level	Positive Result (A)	Negative Result (B)	Positive Result (C)	Negative Result (D)		
K (all students)						
1 (If new to CA)						N/A
2 (If new to CA)						N/A
3 (If new to CA)						N/A
4 (If new to CA)						N/A
5 (If new to CA)						N/A
6 (If new to CA)						N/A
7 (If new to CA)						N/A
8 (If new to CA)						N/A
9 (If new to CA)						N/A
10 (If new to CA)						N/A
11 (If new to CA)						N/A
12 (If new to CA)						N/A

Name of person completing form: _____ Title: _____
Area Code & Telephone Number: _____ E-mail address: _____
Facsimile (Fax) Number: _____

- Attention school staff:
  Please send your school's completed report form by NOVEMBER 8, 2002 to the LAUSD Nursing Coordinator.
- Attention LAUSD Nursing Coordinator: **Please forward the completed report forms by DECEMBER 13, 2002 to:**
  Clovia Lee, M.P.H., School Mandate Coordinator
  Tuberculosis Control Program
  2615 S. Grand Avenue, Room 507
  Los Angeles, CA 90007-2608

➔ For questions regarding extracting information from the school computer please contact your district office.
➔ For questions regarding completing this form, please call the School Mandate Coordinator at TB Control: 213-744-6160.
➔ For questions regarding the TB Skin Test, please call the TB Nurse at TB Control: 213-744-6160.

COUNTY OF LOS ANGELES
DEPARTMENT OF HEALTH SERVICES
Public Health

THOMAS L. GARTHWAITE, M.D.
Director of Health Services and Chief Medical Officer

JONATHAN E. FIELDING, M.D., M.P.H.
Director of Public Health and Health Officer

Tuberculosis Control Program

ANNETTE NITTA, M.D., Director
2615 South Grand Avenue, Room 507
Los Angeles, California 90007
TEL (213) 744-6160 ℄ FAX (213) 749-0926

www.lapublichealth.org

DATE: September 9, 2002

TO: All Catholic Schools

FROM: Annette Nitta, M.D.
Director, TB Control Program

SUBJECT: **TUBERCULOSIS (TB) SKIN TEST SCHOOL MANDATE REPORTING**

We are now in the eighteenth year of TB Skin Test School Mandate Reporting in Los Angeles County. As you know, the California Administrative Code, Title 22, Division 22, Chapter 9, Sections 41301-41329, was passed in 1980, authorizing the Local Health Officer to mandate TB Screening of school children. In 1985, Tuberculosis Skin Test School Mandate Reporting began in Los Angeles County and has continued to date. The purpose of the school mandate is to measure annual TB infection rates in the school-aged population and identify children who are candidates for treatment of latent TB infection.

The most recent data from the 2000-2001 school year for the TB Skin Test School Mandate Reporting shows that 143,556 children enrolled in grades K-12 were reported to have undergone TB skin testing. Of those children tested, 3.5% were TB Skin Test positive. During the subsequent evaluation of the children who were screened, 26 were found to have active tuberculosis and 65 were identified as TB suspect cases. Thus, in addition to identifying children who were candidates for treatment of latent TB infection, TB Skin Test School Mandate Reporting identified a total of 91 children in the school year 2000-2001 who had active or suspected TB disease. Had they not been screened under the TB Skin Test School Mandate, these children might otherwise have had their diagnosis delayed.

Enclosed, please find a copy of the Tuberculosis Skin Test Mandate Report Form, a double-sided flyer outlining TB Skin Test Requirements and screening recommendations, a double-sided TB Update containing answers to frequently asked questions, and a sample Report Form. The Report Form should be completed by every school in Los Angeles County (public, private, and parochial).

The school mandate applies (1) to all students entering Kindergarten and (2) to those students in Grades 1 though 12 who have never attended any school in California. This includes: students entering Grade 1 who skipped Kindergarten; students who have never attended school before; and students who are transferring into Grades 1-12 at Los Angeles County schools from schools in other states and other countries between November 1, 2001 and October 31, 2002. Information should be included for all students covered by the mandate who are enrolled for the 2002-2003 school year.

If you have any questions regarding the TB Skin Test Requirements, please contact a TB Nurse at (213) 744-6160. Please direct all questions regarding the mandate requirements or the Report Form completion to the School Mandate Coordinator at (213) 744-6160.

The TB Skin Test School Mandate Report Form must be forwarded to the Coordinator of Health Services at the Archdiocese of Los Angeles, Department of Catholic Schools, by Friday, October 18, 2002. Thank you for your cooperation.

ATN: cll
Enclosures

TUBERCULOSIS SKIN TEST REPORT FORM
SCHOOL MANDATE 2002-2003
CATHOLIC SCHOOLS

DISTRICT/SCHOOL CODE:
School Name:
Address:
City:
Zip Code:

ADDRESS CORRECTIONS:
School Name:
Address:
City:
Zip Code:

INSTRUCTIONS: (Complete the table below to report the TB SKIN TEST results for your school)

1. For each grade level Kindergarten through Grade 12 (indicated on the left column of the table below), please report the NUMBER of positive and negative skin test results for each category, U.S. born or Foreign born (columns A, B, C, and D). Please enter zeroes where appropriate.
2. Please report the NUMBER of waivers * (both medical waivers and personal/religious belief waivers) in the appropriate column in the table below (column E). Please enter zeroes where appropriate.
3. Please indicate the **TOTAL ENROLLMENT OF KINDERGARTENERS ONLY** (column F). The sum of the number of Kindergarteners tested or with waivers **MUST** equal the total Kindergarten enrollment. [A + B + C + D + E = F]
4. **REMEMBER:** Only the **Mantoux Skin Test** is acceptable. **Multiple Puncture Tests** are unacceptable for the School Mandate.
5. **Students covered under the Tuberculosis Skin Test School Mandate:**
   - ALL Kindergarten students must have a Mantoux TB Skin Test within one year prior to the first day of school. (Pre-school students should not be included on this table. Pre-school and day-care facilities have their own requirements.)
   - NEW students in grades 1-12 who have never previously attended a California school must show proof of a Mantoux TB Skin Test from any previous time. (Transfer students from within California or Los Angeles County are not required to have a TB Skin Test).
   - For students transferring into your school after the start of the school year, please include those who enroll in your school on or before October 31, 2002. Students who enroll after the cut-off date of October 31, 2002, should not be included on your school's Report Form, as they will be included on the previous school's Report Form.
6. Pending results require urgent follow-up and cannot be reported without a result.
7. If no students are eligible for the mandate, please check the appropriate box on the table and return the form.
8. If your school uses age groups instead of grade levels, estimate the grade level based on age and fill-in the appropriate row for that grade.
9. **Please list your name, title, telephone number, and e-mail address** below the table.

If no students are covered by the 2002-2003 TB Skin Test Mandate, check this box:						
	U.S. Born Tested		Foreign Born Tested		Number of Waivers * (E)	Total K Enrolled (F)
Grade Level	Positive Result (A)	Negative Result (B)	Positive Result (C)	Negative Result (D)		
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12 (If new to CA)						N/A

Name of person completing form: _____ Title: _____
Area Code & Telephone Number: _____ E-mail address: _____
Facsimile (Fax) Number: _____

- Attention school staff: **Please send your school's completed report form by OCTOBER 18, 2002 to the Coordinator:**
  Sister Monica Quigley, Health/Safety Coordinator
  Department of Catholic Schools
  3424 Wilshire Boulevard, Seventh Floor
  Los Angeles, CA 90010-2241

- Attention Coordinator: **Please forward the completed report forms by NOVEMBER 8, 2002 to the Tuberculosis Control Program.**

➔ For questions regarding completing this form, please call the School Mandate Coordinator at TB Control: 213-744-6160.
➔ For questions regarding the TB Skin Test, please call the TB Nurse at TB Control: 213-744-6160.

TUBERCULOSIS SKIN TEST REPORT FORM
SCHOOL MANDATE 2002-2003
CATHOLIC HIGH SCHOOLS

DISTRICT/SCHOOL CODE:
School Name:
Address:
City:
Zip Code:

ADDRESS CORRECTIONS:
School Name:
Address:
City:
Zip Code:

INSTRUCTIONS: (Complete the table below to report the TB SKIN TEST results for your school)

1. For each grade level Kindergarten through Grade 12 (indicated on the left column of the table below), please report the NUMBER of positive and negative skin test results for each category, U.S. born or Foreign born (columns A, B, C, and D). Please enter zeroes where appropriate.
2. Please report the NUMBER of waivers * (both medical waivers and personal/religious belief waivers) in the appropriate column in the table below (column E). Please enter zeroes where appropriate.
3. Please indicate the **TOTAL ENROLLMENT OF KINDERGARTENERS ONLY** (column F). The sum of the number of Kindergarteners tested or with waivers **MUST** equal the total Kindergarten enrollment. [A + B + C + D + E = F]
4. **REMEMBER:** Only the **Mantoux Skin Test** is acceptable. **Multiple Puncture Tests** are unacceptable for the School Mandate.
5. **Students covered under the Tuberculosis Skin Test School Mandate:**
   - ALL Kindergarten students must have a Mantoux TB Skin Test within one year prior to the first day of school. (Pre-school students should not be included on this table. Pre-school and day-care facilities have their own requirements.)
   - NEW students in grades 1-12 who have never previously attended a California school must show proof of a Mantoux TB Skin Test from any previous time. (Transfer students from within California or Los Angeles County are not required to have a TB Skin Test).
   - For students transferring into your school after the start of the school year, please include those who enroll in your school on or before October 31, 2002. Students who enroll after the cut-off date of October 31, 2002, should not be included on your school's Report Form, as they will be included on the previous school's Report Form.
6. Pending results require urgent follow-up and cannot be reported without a result.
7. If no students are eligible for the mandate, please check the appropriate box on the table and return the form.
8. If your school uses age groups instead of grade levels, estimate the grade level based on age and fill-in the appropriate row for that grade.
9. **Please list your name, title, telephone number, and e-mail address** below the table.

If no students are covered by the 2002-2003 TB Skin Test Mandate, check this box:						
	U.S. Born Tested		Foreign Born Tested		Number of Waivers * (E)	Total K Enrolled (F)
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9 (If new to CA)						N/A
10 (If new to CA)						N/A
11 (If new to CA)						N/A
12 (If new to CA)						N/A

Name of person completing form: _____ Title: _____
Area Code & Telephone Number: _____ E-mail address: _____
Facsimile (Fax) Number: _____

- Attention school staff: **Please send your school's completed report form by OCTOBER 18, 2002 to the Coordinator:**
  Dorothy Pittelkau, Assistant Superintendent of Secondary Schools
  Department of Catholic Schools
  3424 Wilshire Boulevard, Seventh Floor
  Los Angeles, CA 90010-2202

- Attention Coordinator: **Please forward the completed report forms by NOVEMBER 8, 2002 to the Tuberculosis Control Program.**

➔ For questions regarding completing this form, please call the School Mandate Coordinator at TB Control: 213-744-6160.
➔ For questions regarding the TB Skin Test, please call the TB Nurse at TB Control: 213-744-6160.

Appendix L. Tuberculosis Control Program Contact Investigation Standards

County of Los Angeles • Department of Health Services
Public Health Programs and Services

TO: James Haughton, M.D.
Shirley Fannin, M.D.
Patricia Hassaki, M.D.
District Health Officers
Kathleen Hunt, R.N.
CHS Nurse Managers
TB Control Professional Staff

FROM: Paul T. Davidson, M.D. [Signature on File]
Director, TB Control

DATE: September 10, 1997

SUBJECT: REVISION OF TB CONTACT INVESTIGATION STANDARDS

The TB Contact Investigation Standards distributed in 7/97 have been revised. Changes were made in the Medical Management Section VIII. A.2, C.1.2 as well as Attachment I.

The revised Standards as well as the Source Case Finding Standards are attached. Please discard the 7/97 version and distribute the 9/97 revision to staff.

Thank you

PTD:la

Attachments

County of Los Angeles
Department of Health Services
Public Health Programs and Services

Tuberculosis Control Program

TUBERCULOSIS CONTACT INVESTIGATION STANDARDS[1]

Contact investigation is an epidemiological investigation which must be done for every new reported index case of TB (suspected or confirmed). Pediatric TB cases require investigation to determine the source case (see "Standards for Source Case/Associate Investigation").

I. PURPOSE

Contact Investigation identifies, examines and evaluates all persons who are at risk of infection with *M.tuberculosis* due to recent exposure to a diagnosed or suspected index case. It is a method for new case finding and allows for early treatment of disease, and early detection and treatment of a new infection. In some cases, it may prevent infection. It is an essential component of tuberculosis elimination.

II. OBJECTIVE

To identify contacts to the index case, determine their risk status, and provide appropriate follow-up treatment.

III. GOAL

Containment of tuberculosis by prevention of secondary TB cases and interruption of the progressive cycle of disease from infection to further infection.

[1] These guidelines are based on the standards set by: 1) Centers fro Disease Control (MMWR, 9/8/95Vol.44/No.RR11 - "Essential Components of a TB Prevention and Control Program; Screening for TB and TB Infection in the High Risk Populations"). 2) American Thoracic Society ("Treatment of TB and TB Infection in adults and children; Am J Respir Car Crit Med, 1994; 149 1359-1374) and 3) California TB Controllers Association and California Department of Health Services ('California TB Control Policy Guidelines' 11/4/91. 4)American Thoracic Society ('Control of TB in the United States', Am. Rev. Dis. 1992, Vol 146, 1623-1633).

Approved by: [Signature on File]
Paul T. Davidson, M.D.
Director, TB Control Program

Effective: July 14, 1997

IV. DEFINITION - General

A. **Index Case** - the first person who presents for evaluation as a confirmed or suspected case of tuberculosis.

B. **Source Case Finding** - an investigation to determine the source of TB infection or disease in an index case. This is especially important in children under the age of 4 with TB infection or disease and in some cases a documented converter. For follow-up in children, see "Protocols for Source Case/Associate Investigation."

C. **TB Contacts** - those persons who have a risk of acquiring tuberculosis because they have shared air with the index patient. The degree of risk is dependent upon the duration and frequency of exposure and is influenced by the degree of infectiousness of the patient. The risk and urgency for follow-up is also influenced by characteristics of the environment and by the contact's likelihood to progress from infection to disease.

V. DEFINITION OF RISK LEVELS

A. Higher Risk:

1. To transmit TB (case/suspect):

   Determining the risk level and urgency for follow-up involves the examination of all of the following factors. In general, a high, a high risk condition exists with either one of the following conditions:

   a. Index case is sputum smear-positive.
   b. Environmental (When index case is smear-positive, an even higher risk of transmission exists):

      - Significant close exposure to contact. (Smear positive or negative.) This may be frequent (prolonged or short visits) or one prolonged visit.
      - Other considerations:
        - poor ventilation
        - crowded living conditions
        - unprotected exposure during cough inducing activity/procedure
        - inadequate treatment for tuberculosis
        - coughing

   Determining the risk level and urgency for follow-up involves the examination of all of these factors. In general, a higher risk condition exists with any one of the above conditions.

2. To become infected, or to progress to disease (contact):

Determining the risk level and urgency for follow-up involves the examination of all of the following factors. In general, a high-risk condition exists with any one of the following conditions.

a. Any uninfected person who shared the air environment with a smear-positive case. Exposure may be close or casual. Level of risk must be assessed on a case by case basis.
b. Any uninfected person who is a close contact and shared the air environment with a smear negative case.
c. Children under age 4.
d. Persons who are HIV+ or have HIV risk factors.
e. Other immunocompromised contacts regardless of other risk factors.

Note: Because of the increased risk of rapid progression to active disease, it is recommended that these contacts be assessed as soon as possible.

B. Lower Risk:

1. To transmit TB (case/suspect):

a. Index case is sputum smear negative.
b. Environmental factors:
   1b. Exposure is short, occasional, or casual.
   2b. Good ventilation or exposure outdoors.

2. To become infected or to progress to disease (contact):

a. Any uninfected person who shared the air environment with an index case and none of the higher-risk conditions listed above are present. Assess on a case by case basis.
b. Previous documented infection with TB - positive Mantoux tuberculin skin test.

VI. Steps in Conducting a Contact Investigation (see Attachment 1 - TB Contact Investigation Algorithm)

A. Risk assessment of index case - every newly-suspected or confirmed TB patient of any age must have a risk assessment to determine the scope and priority of the investigation.

B. Risk assessment procedure for index case:

1. A medical record review, and if necessary, call the medical provider or lab to obtain as much information as possible on the following data within 24 hours or

next working day of receiving report notification.

a. Site of TB disease
b. Date of onset and type of symptoms
c. Chest x-ray result
d. Types of TB medications and start date(s)
e. Bacteriology and name of lab where specimen sent
f. High-risk medical conditions
g. Employment history, work site information, school information
h. Living situation and social factors
i. Sections 1,3,4,5 of the Contact Investigation Report (H-289) should be completed.

2. Determine and record degree of risk, higher or lower, for this index case to transmit TB to others based on bacteriologic, clinical, and social/cultural findings.

3. Assessment of risk factors and the initiation of contact investigation should not be delayed if unable to obtain data on all of the above. Initially, the degree of infectiousness is the most important factor to determine.

C. Investigation, Interview and Assessment of Contacts

1. Higher risk to transmit - highest priority of investigation.

   a. Home visit should be made within 3 working days of receiving the case notification to interview the index case and/or household concerning his/her contacts. This investigation should be done face to face, not by telephone. A field visit must be made to examine the patient's environment. The case manager should work with health department staff in all jurisdictions involved with the case to develop a complete list of contacts.

   b. Begin the interview process:

      1. Explain your role and the purpose of the interview.
      2. Stress to the patient that all information will remain confidential. (See Section VI, C, 3).
      3. Continually assess the patient's ability to comprehend your questions. Use interpreter if necessary.
      4. Review the patient's understanding of TB and how it is transmitted.
      5. Discuss the importance of examinations for persons who have shared air with the patient and explain the skin test procedure.
      6. Collect information for Contact Investigation Report (H-289) including information addressing home, work, or school locations.
      7. Question the case about his/her activities during infectious period at sites other than home, work, or school (e.g.,church groups, bar, correctional facility, "crack-house," drug treatment center, or any other frequently-visited sites/people).

c. Determine if contacts are at higher risk to progress to disease if they become infected (children <4 years of age, those with HIV+ or have HIV risk factors or immunocompromised).
d. Complete list of contacts with information on risk level on the Contact Investigation Report (H-289).
e. Additional field visits should be made to examine other sites where transmission from the patient may have occurred.
f. See Attachment 2 for suggestions of where to obtain further information to assist in locating contacts.
g. Reinterview the patient several times to assure that all contacts have been identified.

2. Lower Risk conditions

a. Review with clinician the extent of contact investigation required and record recommendations.
b. Contact should be made within 7 working days of receiving case notification.
c. Begin the interview process, as stated above.
d. Determine if contacts are at higher risk to progress to disease if infected (children <4 years, those with HIV+ or have HIV risk factors, and immunocompromised. These contacts should be given priority for examination).
e. Complete list contacts and information on level of risk on the Contact Investigation Report (H-289).

3. Confidentiality:[2]

1. Household, Social Contacts:

Explain to the patient that his/her name will not be mentioned to social contacts without permission. The patient can assist you in determining the level of risk for his/her contacts. The contacts can receive follow-up without needing to use patient's name, unless he/she gives permission.

[2]Legal authority; California Health and Safety Code, Sec. 121365E

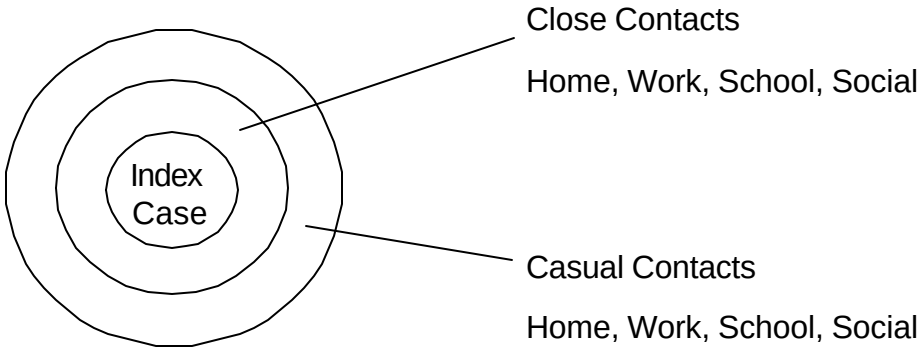
2. Work, School, Other Group Contacts:

These contacts may need to be tested depending on the infectiousness of the case, the environmental factors, and the skin test results of the other contacts. In some settings, a few persons will need to know the name of the case to ensure all contacts are identified and to determine their level of risk. Ask the patient for the name of a person of authority at the site you can contact to begin the investigation. Assure the patient that his/her name will not be announced as the index case and that the persons that we arrange the testing with will be advised to keep his/her name confidential. However, counsel the patient that in these types of testing situations, others often figure out who the index case is. If the patient has any problems (e.g., being ostracized) at the site, the case manager should be notified so additional education can be done. Problems that develop are usually due to lack of understanding of TB and can be minimized by providing TB education. If the person refuses to give contact information, consult with your supervisor and the TB Control on how to proceed.

4. Expanding the concentric circles of investigation:

a. Begin by examining persons in the inner circle who are at higher risk of becoming infected - those with closest exposure in the home, at work or school and in social settings.

b. Evaluate the results of the higher-risk contact investigation. If there is evidence of transmission to the higher risk contacts (e.g., a higher than expected number of positive skin tests, and/or converters, or secondary active cases), move to the next circle of contacts who are more casual in their exposure at home, at work, at school or in social settings.



VII. Evaluation of Contact Investigation

A. It is recommended that the progress of the contact investigation and follow-up be reviewed at the following intervals:

1.	After assessment of risk is determined.	2 working days after case notification
2.	After contacts are recorded on the H-289 for the purpose of reviewing the number of contacts, their relationship to the index case, and if adequate investigation was done.	7 to 14 working days after case notification
3.	If problems arise that delay the contact investigation.	at any point during contact follow-up
4.	After or near completion of all initial contact investigation.	1 month after initial case notification
5.	After completion of all contact follow-up.	3 to 4 months after case notification

B. For contacts living in other census tracts, districts or jurisdiction, PHN will coordinate follow-up.

C. TB Control is responsible for the quality control of all aspects of contact investigation.

VIII. Medical Management of Higher Risk Contacts

Screening (skin testing and/or x-ray) of TB contacts for infection and/or disease should be done as soon as possible and within 7 working days after the home visit with index case. Medical assessment should be completed within 10 working days of home visit. Every effort should be made to identify and find contacts within the time frame stated above. Fro those contacts not identified during the initial home visit, screening, examination and follow-up should be done within 7 working days of being identified.

A. Initial Visit:

1. Place Mantoux tuberculin skin test with 5 TU PPD unless history of a prior positive skin test or treatment of tuberculosis disease is documented in writing (10mm or more). Skin testing (and reading 2-3 days later) may be performed in the field to enhance adherence.

2. Arrange for or do an immediate chest x-ray for contacts to smear positive cases, children < 4 years, those who are HIV+ or have HIV risk factors, and the immunocompromised. Chest clinician should read film before it is sent to the radiologist.

3. Clinical evaluation: if symptomatic and/or x-ray abnormal, manage as a TB suspect.

B. For skin test reading of 5mm or More:

1. Take chest x-ray if not already done.

2. If the chest x-ray is normal and if patient is asymptomatic, strongly recommend INH preventive treatment (unless medically contraindicated) for 6-12 months. Length of therapy is dependent upon age and/or risk factors.

3. If the chest x-ray is abnormal, or if patient is symptomatic, arrange for an immediate diagnostic evaluation and appropriate treatment as a TB suspect.

C. For skin test reading less than 5mm:

1. For contacts to smear positive cases, children <4 years, those with HIV+ or have HIV risk factors, and the immunocompromised:

   a. Do a chest x-ray if not already done.
   b. If the chest x-ray is normal, strongly recommend INH and continue drug for three months from the date of last exposure to potentially infectious index case.
   c. Repeat skin test three months after last exposure to the infectious case.
      - **S** If still less than 5mm, discontinue the INH and discharge from supervision if index case is noncommunicable and/or contact has been broken.
      - **S** If skin test converts to 5mm, or larger, continue with INH for a total of 6-12 months depending on age and/or risk factors. If patient has been symptomatic or noncompliant with INH regimen, repeat chest x-ray and assess for follow-up as a TB suspect.
      - **S** Evaluation should be made of immunocompromised contacts to determine if repeat negative skin test is valid. This is important because of possible anergy. If anergic, continue INH for 12 months.

2. For close contacts to smear negative cases:

    a. Repeat skin test 3 months from date of last exposure.
    b. If skin test converts to 5mm or larger, take a chest x-ray.
    c. If chest x-ray is normal, and if patient is asymptomatic, strongly recommend INH preventive treatment (unless medically contraindicated) for 6-12 months. Length of therapy is dependent upon age and/or risk facots.
    d. If chest x-ray is abnormal, or if patient is symptomatic, arrange for an immediate diagnostic evaluation and appropriate treatment as a TB suspect.

D. For those 55 years or older, two-step skin testing may be considered by the clinician if the first test is negative. If the second test (done 7-10 days later) is positive, interpretation of this result (past infection vs infection from current exposure) should be done on a case by case basis. If the second test is negative, follow-up as described above in Section VIII C.

E. Failure to comply with screening, exam and/or preventive treatment recommendations:

1. See TB Manual section on broken appointment follow-up and algorithm (Attachment 3).

2. Every effort (including incentives) must be made to assist contacts to follow-up within the time frames mentioned.

3. If necessary, legal orders issued by TB Control may be required for the contact to comply with screening and exam recommendations within a specified time frame.

4. Individuals who refuse preventive treatment should be counseled regarding the possibility of future disease and discharged from supervision if skin test placed three months after last exposure is negative. Documentation of referral and counseling is to be noted in the medical record.

5. Attempts should be made to notify the primary care physician of children <4 years, persons who are HIV+ or have HIV risk factors, or other immunocompromised contacts who refuse preventive therapy.

IX. Medical Management of Lower Risk Contacts

Note: Children under age 4, those with HIV+ or have HIV risk factors or other immunocompromised contacts are always considered higher risk contacts.

A. Screening (skin test and/or x-ray) should be done <u>within 14 working days after home visit with index case. Medical assessment should be completed within 28 working days of the home visit.</u> Every effort must be made to identify and find contacts within the af time frame state above. For those contacts not identified during the initial home visits, screening, examination, and follow-up should be done within 14 working days of being identified.

1. Arrange for Mantoux tuberculin skin test with 5 TU PPD unless there is documented history of prior positive skin test or treatment for tuberculosis disease. Two-step skin testing may be considered as stated before in Section VIII D.

2. Clinical Evaluation:

   a. If symptomatic (e.g., has cough and sputum production), obtain chest x-ray and do additional work-up as indicated.

   b. If asymptomatic and/or no evidence of active disease, follow-up as described below.

B. Skin test reading:

1. Mantoux positive, 10mm induration or larger; obtain chest x-ray and follow as a tuberculosis infection Class II (see TB Manual).

2. Mantoux skin test less than 10 mm
   - recommend to the patient that he/she should return for a repeat skin test in 3 months
     - if negative, close
     - if positive, follow as B1

C. Failure to Comply: No effort should be made to obtain examination of the lower risk contact group who does not come in voluntarily.

X. Management of All Contacts for Whom There Appears to be Negligible Risk for Transmission of TB

A. Self described contacts who do not meet the definition of higher or lower risk contacts should be treated as screening subjects.

B. If these contacts come in voluntarily, offer education and skin test for reassurance and follow as routine TB screening.

C. Such individuals should not be identified as contacts on the Contact Investigation Report (H289).

XI. Management of All Contacts With a Previously Documented Positive PPD

A. Contact with a previously documented positive PPD must be screened for TB symptoms.

1. If symptomatic, arrange for a chest x-ray and an immediate clinical evaluation.

2. If asymptomatic with no other medical risk factors and did not previously complete INH, refer to clinician to assess the need for a chest x-ray and INH preventive therapy.

3. If not immunocompromised, asymptomatic,, and having completed an adequate course of INH, they need no further follow-up. An x-ray may be considered if clinical status change.

4. If immunocompromised, asymptomatic, and no previous history of completing an adequate course of INH preventive therapy, arrange for a chest x-ray and recommend INH preventive treatment for 12 months. If chest x-ray abnormal, handle as a suspect.

5. If immunocompromised, asymptomatic, completed an adequate course of INH preventive therapy, arrange for a chest x-ray and refer to the clinician for consideration of a repeat course of INH preventive therapy. If chest x-ray abnormal, handle as a suspect.

XII. Management of Contacts to Drug Resistant TB

A. Evaluate contacts as per risk.

B. Consult with TB Control prior to initiating preventive therapy regimen for contacts to MDR or suspected MDR.

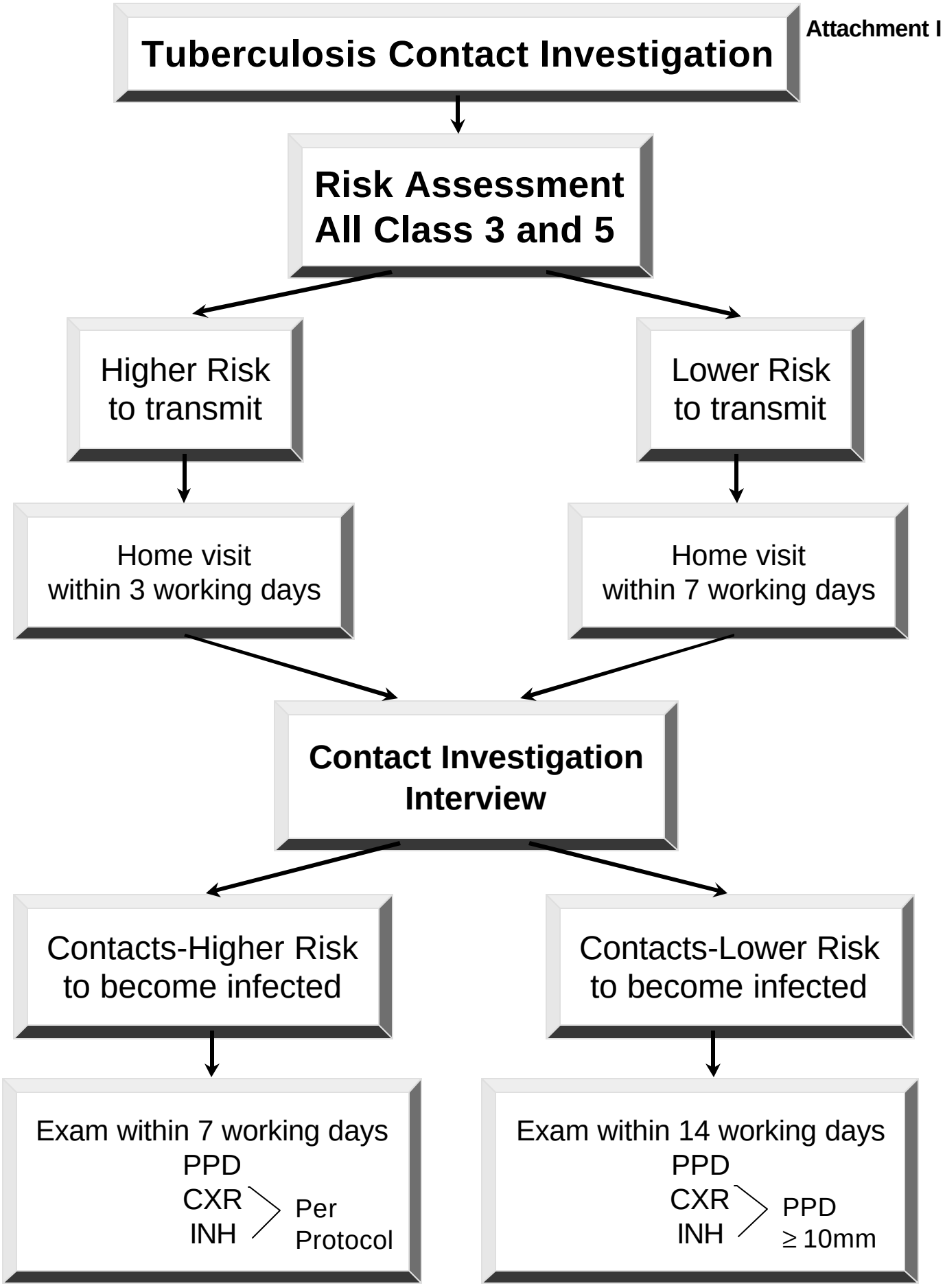
XIII. Management of Contacts by Providers Outside of the Health Department

A. Contacts may be followed by providers outside of Health Department

B. The follow-up and timeliness are the same for all providers.

C. To complete contact investigation, the PHN case manager must obtain information on any screening and follow-up done by outside providers to assure that the follow-up has been completed. The H-687 letter (attachment 4) may facilitate retrieval of this information. This letter is available in TB Control.

Attachment I



FRANCIS J. CURRY NATIONAL TUBERCULOSIS CENTER

FIELD INVESTIGATION RESOURCE LIST

IN HOUSE

1. Clinic medical records
2. Old CMRs (Confidential Morbidity Reports)
3. Laboratory reports/slips
4. Marginal information contact file
5. "Pro bool." (known prostitutes)

PHONE, MAIL & UTILITIES

6. Telephone book
7. Directory assistance
8. Telephone reverse/cross directory (Haines, Polk, Williams, etc.)
9. Telephone company security office for unlisted number
10. Post office (P.O. boxes, change of address)
11. Letter carrier
12. Water company
13. Utility company (gas and electric)
14. Cable company

OTHER STAFF

15. Disease intervention specialists
16. PHNs (Public Health Nurses)

PUBLIC RECORDS

17. Voter's registration
18. County tax assessor (property/business tax)
19. Birth and death records

HEALTH PROVIDERS

20. Insurance provider
21. Health department clinics (TB,STD,FP,etc.)
22. Community clinic records
23. Private clinic records
24. State prison medical records
25. Mobile clinics
26. Visiting nurses association
27. County and private hospitals
28. Drug treatment facilities
29. Street outreach workers (homeless, needle exchange, substance abuse, sex industry)

EMPLOYMENT

30. Employer
31. EDD (Employment Development Department)
32. Union halls
33. Talent agents
34. Casual laborer locations/employers
35. Recycling (buy back) centers

EDUCATION SYSTEM

36. Schools (junior high to college)
37. School attendance/locator
38. School nurse
39. Teacher/instructor/aides

COMMUNITY RESOURCES

40. Friends and relatives
41. Housemates or roommates
42. Apartment/hotel owner/manager
43. CBOS (community based organizations)
44. Knowledgeable community members
45. Neighborhood contacts (especially children)
46. Neighborhood grocery/liquor store
47. Neighborhood bar/restaurant

SOCIAL SERVICE & GOVERNMENT AGENCIES

48. Fire Department
49. Health inspectors
50. Building inspectors/Urban (City) planners
51. DMV (Department of Motor Vehicles)
52. Welfare department (GA,AFDC,Food Stamps)
53. WIC (Women, Infants and Children) Program
54. CPS (Child Protective Services)
55. District Attorney's Office – Family Support Division
56. Housing Authority
57. Homeless shelter(s) staff & records
58. Social Security office
59. IRS (Internal Revenue Service)
60. INS (Immigration and Naturalization Service)

LEGAL/JUSTICE SYSTEM

61. County courts (if a person has a scheduled appearance)
62. Police department (beat officers, vice officers, community relations, etc.)
63. Sheriff's department
64. County jails
65. Prisons (federal and state prisons)
66. Juvenile hall
67. Probation department/officers
68. Parole department/officers
69. Bail bondsmen

MILITARY

70. Military (preventive medicine)
71. Military locators (including ship locators)

OTHERS

72. Credit history (need SS#)

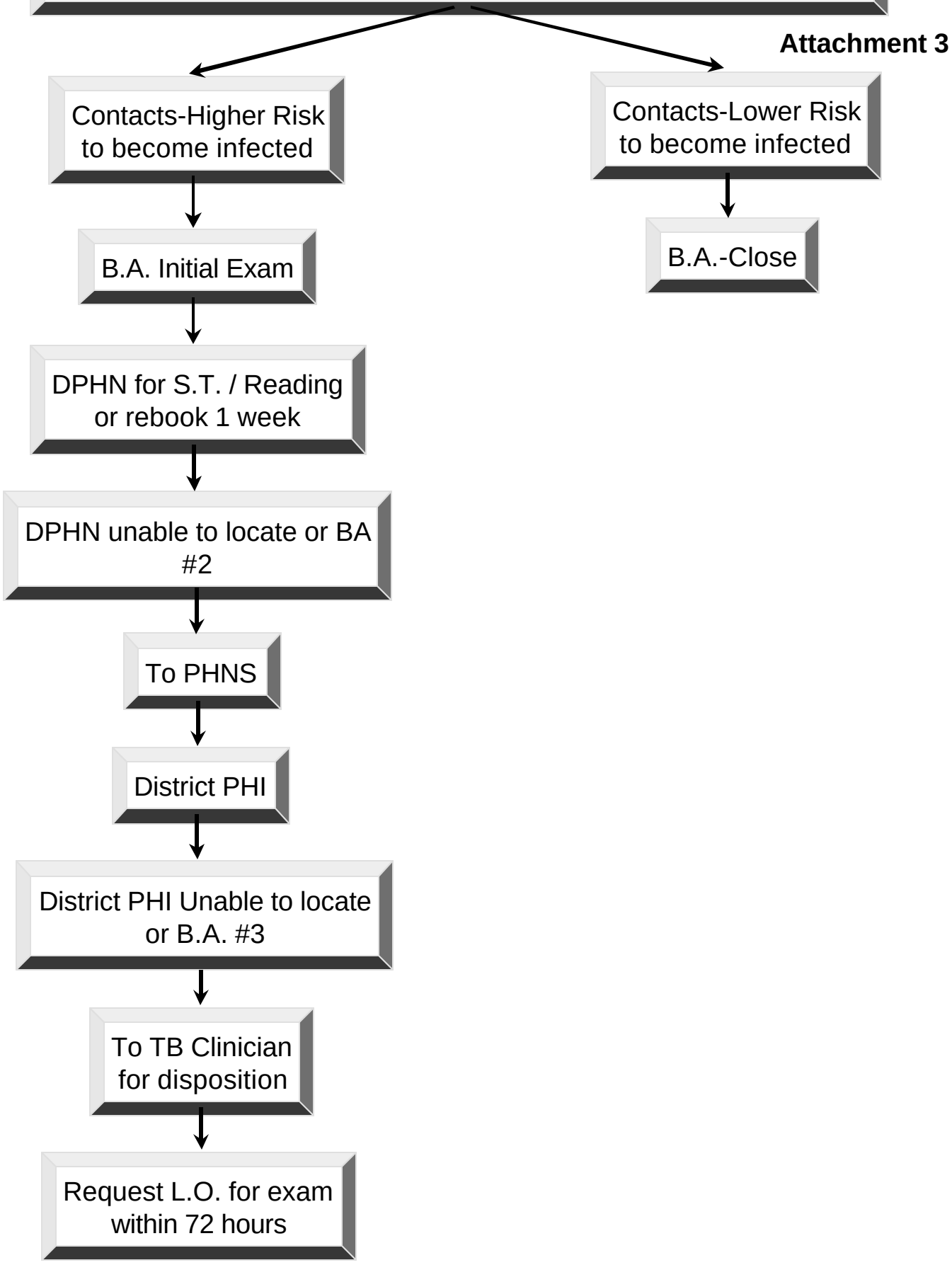
BASIC INFORMATION THAT CAN HELP YOU LOCATE SOMEONE

1. Full name, AKAs, nickname
2. DOB and age
3. Race
4. Description (ht., wt., hair color/style, eye color, any distinguishing marks or tattoos)
5. Last known address
6. Phone number
7. Social security number
8. Driver's license number
9. Vehicle license
10. Medical record number
11. Prison identification number

Developed by: Stewart Coulter (State of California, Department of Health Services – STD/TB Field Services) & Wesley S. Wong (San Francisco Department of Public Health, Francis J. Curry National Tuberculosis Center)

TB Contact Investigation/Broken Appt. Follow Up

Attachment 3



ATTACHMENT 4
Please refer all correspondence to Health Center:

Mark Finucane, Director

COUNTY OF LOS ANGELES
DEPARTMENT OF HEALTH SERVICES
TUBERCULOSIS CONTROL PROGRAM
2615 S. Grand Avenue, Room 507
Los Angeles, CA 90007

Dear Doctor:

We are requesting your assistance in determining whether certain persons know to have been exposed to an active case of tuberculosis may also be infected. On the reverse of this letter are the name(s) of contact(s) who were reported to be under your supervision. Your cooperation is requested as follows:

1) Enter the date and results of your examination of contact(s) and disposition made. (Please enclose Confidential Morbidity Report if suspected or active tuberculosis disease is identified).

2) Please indicate whether or not you wish the Health Department to follow this patient.

3) Return this letter in the enclosed self-addressed envelope or fax this form to:
FAX # ( )_ _____

Routine follow-up procedure for all high risk/close contacts includes a Mantoux 5TU PPD tuberculin skin test. If skin test is negative, obtain a chest x-ray and offer INH preventive therapy. Re-skin test in three months, discontinue INH if skin test remains negative on retesting. If skin test is positive, follow with chest x-ray and offer preventive therapy for 6 to 12 months.

Very truly yours,

_____, M.D.
District Health Officer

_____, R.N.
District

_____
Telephone number

HEALTH DEPARTMENT TO COMPLETE

Index Case Information

Site of Disease:______________ Bacteriology Date:_____________

Symptoms: Date onset:________ Sputum ☐

Cough: ☐ Yes ☐ No Other: specify:________________

Sputum production:☐ Yes ☐ No AFB Smear: ☐ Pos ☐ Neg

Culture:☐ Pos M.TB ☐ Neg ☐ Pend

PHYSICIAN PLEASE COMPLETE ALL INFORMATION BELOW

Name of contact	Relationship to Index Case	Exposure Risk		Birth Date	Date of Exam	Results		Findings/Disposition			Health Dept. F/U Requested		Comments
		High	Low			PPD	Chest X-ray	Treatment	Start Date	Follow-up Plans	Yes	No	

ADDITIONAL INSTRUCTIONS FOR CONTACT INVESTIGATION REPORT (H-289)

1. Initiate for all TB suspects (class 5) and (class 3) of any age.

2. Source case finding (box 2) should be used only for reactors under age 4 and/or any other converters in which source case finding is indicated.

3. All higher risk contacts must have all contact examination information completed (skin test, x-ray, preventive treatment) regardless of source of supervision. An H-687 (available at TB Control) can be sent to private physicians requesting this information.

4. The initial skin test box can be used for previous PPD result. In this situation, the retest skin test box can be used for the current PPD.

5. If additional spaces for contacts are needed, it is not necessary to complete boxes 1 through 5 on the additional forms. Put name of index case on each page and the page number in the comments section.

6. Multiple copies can be made for each jurisdiction needing it.

Timelines for completion of Contact Investigation Report (H-289):

<u>Contacts residing in your health district</u>

Higher risk – Return completed H-289 to TB Control within 30 days of receipt of case report
Lower risk – Return completed H-289 to TB Control within 45 days of receipt of case report

<u>Contacts residing outside of your district, but within DHS jurisdiction</u>

Higher risk – H-289 with H-304s should be sent to new district within 7 days of receipt of case report and returned to TB Control within 30 days after receipt by new district
Lower risk – H-289 with H-304s should be sent to new district within 14 days of receipt of case report and returned to TB Control within 45 days after receipt by new district

<u>Contacts residing outside DHS jurisdiction</u>

Higher risk and Lower risk – H-289 should be sent to TB Control within 7 days of receipt of case

SOURCE CASE/ASSOCIATION INVESTIGATION STANDARDS

I. DEFINITION

An investigation to determine the source of infection in a child or in a documented converter. Although these cases may not in themselves be sources of infection for other, additional new cases and a high yield of infected individuals may be found stemming from a common source of infection. Examination of the closest associates is usually all theat is necessary, but the investigation may become larger if more infected persons are found and the source case is not immediately apparent.

II. PRIORITY OF INVESTIGATION

The first priority is a child under the age of 4. If resources allow, source case finding can be attempted for documented converters ages 4 and above if there is a reasonable probability of finding the source.

Using the expanding circle of epidemiological investigation, begin the investigation by examining the closest associates to the child. Expand the circle only if the source of infection has not been identified which suggests an as yet unfound common source of infection.

III. MANAGEMENT OF ASSOCIATES

1. Initial visit: Examine as soon as possible - within 14 working days of identification of reactor or converter.
   a. Clinical evaluation:
      1. Mantoux skin test
      2. If symptomatic, chest x-ray
2. Skin test reading
   a. Skin test negative and asymptomatic, discharge from follow-up.
   b Skin test 10mm or more, chest x-ray and, if normal, refer for preventive therapy, if applicable. If abnormal follow as a TB suspect.
3. Failure to keep initial appointment
   a. Contact associate within five (5) working days to determine reason for noncompliance.
   b. Educate associates regarding both the medical and legal implications of nonexamination
   c. If still unsuccessful, the treatment team should decide whether to issue a Legal Order for Examination.

Approved by: [Signature on File]
Paul T. Davidson, M.D.
Director, TB Control Program

Effective: July 14, 1997

COUNTY OF LOS ANGELES
Public Health

Los Angeles Unified School District (LAUSD)/ County of Los Angeles Department of Public Health
Procedure for Reporting of Suspected and Confirmed Cases of Tuberculosis
Requiring Contact Investigation (Students, Employees and Volunteers Grades K-12 Only)

(Adult School TB contact investigations are solely the Public Health Department's responsibility with consultation provided by TB Control)

ACTION	LAUSD CD NURSE	DPH	
		TBC	DISTRICT
RESPONSIBILITIES PRIOR TO CONTACT INVESTIGATION			
TBC Headquarters Surveillance Nursing will: **Report** any suspected or lab-confirmed TB Case to LAUSD CD Nurse/Director School Medical Services SMS/ Director Nursing Services DNS (213) 765-2805 (confidential line) or (213) 765-2800 (main line). **Investigate** and validate index case information including smear & culture status and chest x-ray result. **Confer** with LAUSD CD Nurse to: 1. Obtain additional information regarding index case to assist with determining communicability. 2. Within 5 work days, request LAUSD rosters with the names/addresses/phone numbers of students, employees and volunteers of all classes and activities that the TB suspect or case participated in. **Discuss** the scope of the contact investigation. Based on: 1. Potential infectiousness of the TB case/suspect. 2. Cumulative duration of exposure to TB suspect/case. 3. Potential for transmission due to environmental factors (e.g. airflow and classroom seating arrangements). 4. Potential for drug resistance in TB suspect/case. **Provide** name of lead Public Health Nursing Supervisor (PHNS) /designee at District Public Health Center where school is located. **Share** all validated index case information **and** **Forward** written recommendations regarding limits of contact investigation and risk of transmission simultaneously to: 1. PHNS/designee at District Public Health Center responsible for the school. 2. Area Medical Director (AMD), Chest Clinician, Nurse Manager, Public Health Nurse Supervisor (PHNS) and Public Health Nurse (PHN) responsible for the index case. **Send** copy of written recommendations to the LAUSD CD Nurse, District Health Center Assistant Program Specialist (APS) and Area Medical Director. **Request** District PHNS/designee responsible to call LAUSD CD Nurse to discuss plan.		XX	

COUNTY OF LOS ANGELES
Public Health

Los Angeles Unified School District (LAUSD)/ County of Los Angeles Department of Public Health
Procedure for Reporting of Suspected and Confirmed Cases of Tuberculosis
Requiring Contact Investigation (Students, Employees and Volunteers Grades K-12 Only)

ACTION	LAUSD CD NURSE	DPH	
		TBC	DISTRICT
Notify both district PHNSs if the index case's district of residence is different than that of the school site's.			
LAUSD CD Nurse will: **Report** any suspected or lab-confirmed TB Case to a Surveillance Unit APS at the TB Control Program (213) 744-6160. **Report** TB case and the initiation of contact investigation to Directors of (SMS) and (DNS) to determine need for further notification e.g., Board Informative. **Contact** school principal and nurse where TB suspect/case attends. 1. Meet with principal and school nurse to discuss recommendations and plan of action. 2. Provide health education related to TB infection vs active TB disease, as indicated. **Send** rosters for all classes and activities that the TB suspect or case participated in within 5 working days to the District Public Health Center responsible for the school. 1. Rosters must: i. Include names, addresses, birthdates and phone numbers of students, employees and volunteers. ii. Indicate for each person, date(s)/results of any prior TB skin test(s) and/or chest radiograph(s), treatment for LTBI or TB disease documented in school health records. iii. Be received by the District Public Health Center *prior* to commencing contact investigation activities. **In consultation** with the district public health center responsible for the school, set date for tuberculin skin test administration of contacts to TB suspect/case. **Send** letter to parents explaining need for tuberculin skin tests/contact investigation and obtain consents.	XX		
District Public Health Nursing will: **Report** any suspected or lab confirmed TB cases/suspects to Headquarters Surveillance Nursing, TB Control (213) 744-6160 and LAUSD CD Nurse (213) 763- 8381 or (213) 763-8374. **(Do not report to the school nurse or principal)** Refer all school phone calls to the LAUSD CD Nurse.			XX

Los Angeles Unified School District (LAUSD)/ County of Los Angeles Department of Public Health
Procedure for Reporting of Suspected and Confirmed Cases of Tuberculosis
Requiring Contact Investigation (Students, Employees and Volunteers Grades K-12 Only)

ACTION	LAUSD CD NURSE	DPH	
		TBC	DISTRICT
Determine the scope of the contact investigation per consensus decision of the AMD, Chest Clinician, PHNS, DPHN, and Health Center APS, TB Controller/designee (CHS Policy No. 105 & 201). **Ensure** completion of the contact investigation in consultation with the Lead AMD/PHNS/PHN, TB Controller/designee. **Coordinate** contact investigation activities with LAUSD CD Nurse and request outcome information from other Public Health Centers involved. **Report** large and/or potentially high-profile contact investigations to the TBC epidemiologist.			XX

ACTION	LAUSD CD NURSE	DPH	
		TBC	District
RESPONSIBILITIES ON DAY OF TB SKIN TEST (TST) ADMINISTRATION			
District Public Health Nursing will: **Review** CHS Policy No. 340; a child 12 yrs. or older may sign consent on H-304. **Initiate** a TB Screening Form (H-304) for each student, employee or volunteer receiving a TB Skin Test. **Assist** LAUSD CD Nurses as requested with TST administration; number of staff necessary to be determined by circumstances involved. **Initiate** H-304s for all students, employees and volunteers on the contact investigation roster who were not tested and refer to their district of residence.			XX
LAUSD CD Nurse will: **Administer** tuberculin skin tests via Mantoux method. PPD solution and syringes should be supplied by LAUSD. **Provide** a listing of contacts (students, employees and volunteers) who were absent the day of TST administration to the District PHN. **Read** and document TST results; provide explanation of results. Those with negative TST results can return to school. **Refer** students and volunteers with positive TST results to the district PHNs on site during the TST readings. **Set up** contingency plan with district PHN(s) for contacts who break TST reading appointment. **Send** list of any LAUSD employees with positive TST results to LAUSD Employee Health Services.	XX		

COUNTY OF LOS ANGELES
Public Health

Los Angeles Unified School District (LAUSD)/ County of Los Angeles Department of Public Health
Procedure for Reporting of Suspected and Confirmed Cases of Tuberculosis
Requiring Contact Investigation (Students, Employees and Volunteers Grades K-12 Only)

ACTION	LAUSD CD NURSE	DPH	
		TBC	District
District Public Health Nursing will: **Assist** LAUSD CD Nurse(s) with TST reading **Counsel** those with positive TST results regarding latent TB infection. **Assess** for symptoms of active TB disease. **Determine** risk factors and explain need for chest x-ray. Those with negative TST can return to school. **A child with a positive TST and no symptoms of TB can return to school conditionally for up to 20 school days while awaiting chest x-ray clearance. **Complete** H-304 TB Screening Form and H-2288 TB Screening History and Patient Information Form (PIF). **Give** chest x-ray appointment for those with positive TST.			XX
Set up contingency plan with LAUSD CD Nurse for contacts who break TST reading appointment (e.g., return the following day or refer to district of residence). **Replace** the PPD solution and syringes used by LAUSD on day of TST administration. **Repeat** screening may be done in 8-10 weeks if there are conversions or other evidence of recent TB transmission in high-risk school contacts from the initial TST screening.			XX
RESPONSIBILITIES FOLLOWING THE TB SKIN TEST (TST) READING			
District Public Health Nursing will: **Send** appointment letter for treatment of LTBI to TB skin test reactors. **Disposition** H-304(s). **Send** original H-304s to the TB Control Program. **Ensure** communication occurs between PHNSs if a contact lives in a district other than the school site's.			XX
General Contact Investigation Protocols: 1. Contacts who fail to show up for TST or TST reading may be excluded from school until test is complete.	XX		XX

ACTION	LAUSD CD NURSE	DPH	
		TBC	District
			XX
2. Contacts with a documented previous positive TST must be screened for symptoms of TB disease on the H-2288. i. If symptomatic - they will need a chest x-ray. ii. **Complete** H-304 TB Screening Form and H-2288 TB Screening History and Patient Information Form (PIF). If asymptomatic and has completed an adequate course of LTBI therapy, no chest x-ray or further follow-up is necessary. iii. If asymptomatic and did not complete LTBI therapy, consult with the District Public Health Center chest clinician regarding need for chest x-ray. iv. If LTBI therapy desired or high number of converters identified, chest x-ray would be indicated. v. If asymptomatic and LTBI therapy not desired and TST conversions or other evidence of recent TB transmission is identified, a chest x-ray is indicated.			
3. TB Suspects/Cases must be excluded from school until clearance as "non infectious" is given by a Public Health Chest Clinician i. Patients with only negative sputum smears must meet all of the following criteria: a) Have three (3) consecutive negative AFB sputum smear results from sputum collected on different days: AND b) Have completed a minimum of four (4) days of multi-drug anti-tuberculosis therapy (per CDHS/CTCA Guidelines 4/97); AND c) Have continued close medical supervision, including directly observed therapy (DOT) if			

ACTION	LAUSD CD NURSE	DPH	
		TBC	District
General Contact Investigation Protocol's cont': needed; AND d) Continues multi-drug therapy, even if another pulmonary process is diagnosed, pending negative final culture results from at least three (3) sputum specimens. ii. Patients with previously positive sputum smears must meet all of the following criteria: a) Have three (3) consecutive negative AFB sputum smear results from sputum collected on different days: AND b) Have completed at least two (2) weeks of multi-drug anti-tuberculosis therapy (per CDHS/CTCA Guidelines 4/97); AND c) Exhibit clinical improvement (e.g., reduction in fever and cough); AND d) Have continued close medical supervision, including directly observed therapy (DOT) if needed; AND e) Continues multi-drug therapy, even if another pulmonary process is diagnosed, pending negative final culture results from at least three (3) sputum specimens.			XX

July 15, 2008

Annette T. Nitta, MD, Director, Los Angeles County TB Control Program

7-15-2008

Deborah Davenport, RN, MS, Director, Community Health Services

DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH
COMMUNITY HEALTH SERVICES

SUBJECT: **TREATMENT OF MINORS** **POLICY NO. 340**

PURPOSE: To define Community Health Services (CHS) policy with regard to provision of routine public health services to persons who are minors.

POLICY: Public Health Centers shall provide routine public health services to minors in compliance with DHS Policy No. 314.1 – Providing Care to Minors in the Absence of Parent or Legal Guardian.

The consent of a parent or guardian is necessary except under the following circumstances:

- Any minor who seeks treatment related to the prevention or treatment of pregnancy. (Civil Code Section 34.5)

- Any minor 12 years of age or who may have come in contact with any infectious, contagious, or communicable disease, if the condition is one which is required by law to be reported to the local health officer. (Civil Code Section 34.7)

- Any minor who has allegedly been sexually assaulted (Sections 34.8 and 34.9). In such cases, the professional person rendering treatment shall attempt to contact the parent or legal guardian, unless the professional person reasonably believes the parent or guardian committed the sexual assault.

- Any minor 12 years or older may consent to treatment or counseling related to diagnosis and treatment of a drug or alcohol related problem. The health care professional may involve the parent or guardian in the treatment plan. (Civil Code Section 34.10)

APPROVED: JAMES G. HAUGHTON, M.D. – Signature on File

DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH
COMMUNITY HEALTH SERVICES

SUBJECT: **AREA MEDICAL DIRECTOR AND COMMUNICABLE DISEASE CONTROL IN HEALTH DISTRICTS** **POLICY NO. 201**

PURPOSE: To clarify the authority of the Area Medical Director in communicable disease control in DHS Public Health Districts.

POLICY:

1. Public Health Nursing or Public Health Investigation (whichever discipline is assigned) will consult with the Area Medical Director for:

   A. ACD CASES

      1. Following initial investigation of:

         - sensitive occupation/situation.
         - diseases where prophylaxis may be considered for contacts.

      2. Before investigation of uncommon/unusual reportable diseases.

   B. TUBERCULOSIS CASES AND CONTACTS

      When TB suspects/cases/contacts, public or private, are non-compliant with TB Control standards for evaluation, source case finding, treatment and follow-up, according to the time frame specified by TB Control (may be delegated to TB physician by the Area Medical Director).

   C. SEXUALLY TRANSMITTED DISEASES

      Non-compliant STD cases or contact to evaluate the need for legal action (may be delegated to the STD physician by the Area Medical Director).

APPROVED: James G. Haughton, M.D. – Signature on file

Appendix M. Standards for Physician Documentation of Medical Management

Subject

Standards for Physician Documentation of Medical Management

Treatment Plan

- Each TB suspect and case should have a plan for evaluation and treatment written in the chart on the first physician encounter. This usually should be on Tuberculosis Patient Initial History and Physical Form (H-2546) or in the progress notes.

- Patient status should be documented at each physician encounter and plans for management written on the TB Patient Clinical Summary (H-513) and as needed in the Progress Notes. Examples: “Treatment will be completed in two months” or “Medication will be held until rash clears.”

- Tuberculosis medication orders are to be clearly and legibly written and follow the instructions included on the H-513 for including no abbreviations.

Patient Summary

- A summary of the patient information should be written in the Progress Notes prior to chart transfer or closure.

H-513 Closure

- Completed Prescribed Course of Therapy - Pulmonary cases should have negative cultures and a follow-up chest x-ray report documented on the H-513 prior to clinician closing the case as “completed prescribed course of therapy.”

- Completed evaluation - TB Diagnosis Not Confirmed - Pulmonary suspects should have at a minimum the results of the initial chest x-ray and the results of the cultures from the initial series, documented on the H-513 prior to physician closing the case as “completed evaluation, TB diagnosis not confirmed.”

H-513 closures will be returned to the physician if the form does not clearly document the reason(s) for closure.

Approved by: [Signature on File]
Paul T. Davidson, M.D.
Director, TB Control Program

Effective: February 18, 2000

Appendix N. Targeted Skin Testing and Evaluation of Latent Tuberculosis Infection (LTBI)

CDHS/CTCA JOINT GUIDELINES
Targeted Skin Testing and Treatment of Latent Tuberculosis Infection in Adults and Children

The following guidelines have been developed by the California Department of Health Services, Tuberculosis Control Branch in consultation with the Executive Committee of the California Tuberculosis Controllers Association. These guidelines are official State recommendations and have been endorsed by the California Tuberculosis Controllers Association.

Recently published guidelines from the American Thoracic Society and Centers for Disease Control and Prevention have recommended a change in nomenclature. The terms "chemoprophylaxis" and "preventive therapy" will no longer be used. Instead, the phrase "treatment of latent tuberculosis infection (LTBI)" is recommended because it more accurately describes the intended intervention. This change in nomenclature will hopefully promote greater understanding of the concept for both patients and providers, resulting in more widespread use of this important tuberculosis (TB) control strategy.

Targeted TB Skin Testing

Targeted tuberculin skin testing for LTBI aims to identify individuals at high risk for TB who would benefit from treatment of LTBI. Skin testing low risk populations will result in unnecessary testing and treatment because of false-positive test results.

High risk can be defined as:

(1) Recent infection with *Mycobacterium tuberculosis*,
(2) The presence of clinical conditions that are associated with an increased risk of progression of LTBI to active TB (see **Appendix 1: Tables 1 and 2**) or
(3) Increased morbidity if progression to TB disease occurs.

Definition of a positive tuberculin skin test

Previous vaccination with BCG is not a contraindication to tuberculin skin testing. Because most persons who have received prior BCG vaccination are from high prevalence areas of the world, previous vaccination should be ignored when interpreting a tuberculin skin test.

I. $\geq$ 5 mm of induration*

A. Persons known or suspected to have HIV infection.

B. Recent contacts to an active case of pulmonary or laryngeal TB.

C. Persons with an abnormal chest radiograph consistent with TB disease.

D. Immunosuppressed individuals (See page 4 **Indications for Treatment of LTBI -TB2 and TB4**, VI-E)

*__Note:__ The California Department of Corrections considers all inmates high risk, and therefore treats for latent infection all inmates with TST of = 5mm.

II. $\geq$ 10 mm of induration

All persons except those in I (A) above

> **Note:** The CDC recommends using a 15 mm cutoff for low risk reactors. However, in California, public health departments do not recognize this cutoff because California is a high incidence state and the prevalence of nontuberculous mycobacterial infections is lower than other regions of the United States.

III. Tuberculin skin test conversion

TST conversion is defined as an increase of at least 10 mm of induration from < 10 mm to $\geq$ 10 mm within two years from a documented negative to positive TST.

Example: a TST of 4 mm that increases in size to 14 mm or more in induration would be considered a skin test conversion.

In some cases, the exact size (in mm) of the previous tuberculin skin test may not be known. In such cases, skin test conversion is defined as a change from a negative to positive tuberculin skin test within a 2-year period.

Evaluation for TB Disease - Symptom review and chest radiography

I. All persons who have a positive tuberculin skin test should undergo symptom review and have a chest radiograph.

A. If the radiograph is normal and the patient is asymptomatic, treatment of LTBI may be indicated (see **Appendix 2**).

B. If the radiograph is normal but the patient has a clinical presentation consistent with tuberculosis, further work-up is indicated and treatment of LTBI should be delayed until active tuberculosis has been ruled out.

II. Bacteriologic studies should be obtained for all persons with an abnormal chest radiograph consistent with tuberculosis even when the radiographic abnormalities appear stable. If bacteriologic studies are obtained, treatment of LTBI should not be initiated until final culture results are available.

Definition of persons eligible for treatment of LTBI (TB2 and TB4)

The following classes of persons are eligible for treatment of LTBI if they have not received a prior course of treatment for active TB or LTBI. In some cases, individuals may require another course of therapy. Indications for re-treatment include persons with a new close contact to an infectious case who are < 5 years of age, or have HIV/AIDS or other significant immunosuppression. Providers may also choose to retreat persons with previously treated LTBI or active TB who have had new exposure to a highly infectious TB case where extensive transmission has been documented, circumstances suggest a high probability of transmission, or in high risk settings such as prisons or other congregate facilities.

I. TB2 - Tuberculosis infection, no disease:

Significant reaction to tuberculin skin test, negative bacteriologic studies (if done) and no clinical and/or radiographic evidence of tuberculosis. Patients with isolated calcified granulomas or apical pleural thickening are generally classified as TB 2.

II. TB4 - Tuberculosis, no current disease:

A. History of previous episode(s) of tuberculosis, or

B. Abnormal*, but stable, radiographic findings in a person with a positive tuberculin skin test, negative bacteriologic studies, and no clinical and/or radiographic evidence of current disease.

*Abnormal refers to radiographs with parenchymal abnormalities consistent with TB, except isolated calcified granulomas.

Indications for Treatment of LTBI – TB2 and TB4 (See **Appendix 2**)

Persons in the following categories should be considered for therapy if their tuberculin skin test is positive and they have not previously completed a course of therapy for tuberculosis or LTBI.

I. Persons known or suspected to have HIV infection, regardless of age, including pregnant women.

II. Persons with an abnormal chest radiograph suggestive of tuberculosis and classified as a TB 4, regardless of age.

III. Recent close contacts to active pulmonary or laryngeal TB, regardless of age, including pregnant women.

IV. Tuberculin skin test converters within 2 years, regardless of age, including pregnant women.

V. Persons from countries with high TB rates

A. Recent arrivals (arrived within the past 5 years or less), regardless of age.

B. Remote arrivals (arrived over 5 years ago)

The CDC guidelines no longer recommend using a 35 year-old cutoff in deciding which individuals with LTBI should be treated. In California, where the majority of the TB cases occur in persons born outside of the United States, it is recommended that individuals who arrived over 5 years ago should still receive treatment for LTBI if they have a positive tuberculin skin test. Because the risk of INH-induced hepatitis is greater in older individuals, an age cutoff may be appropriate for this group. Local epidemiologic circumstances and resources should determine whether a specific age cutoff is warranted.

VI. Persons with the following conditions that have been associated with an increased risk of TB (See **Appendix 1, Tables 1 and 2**), regardless of age:

A. Injection drug use, regardless of HIV serostatus

B. Diabetes mellitus (especially insulin-dependent)

C. Silicosis

D. End-stage renal disease

E. Chronic immunosuppression

1. Transplant recipients
2. Prolonged corticosteroid therapy (=15 mg/day for = 1mo)
3. Other immunosuppressive therapy

F. Hematological and reticuloendothelial diseases

G. Malnutrition and clinical situations associated with rapid weight loss

1. Cancer of the head and neck
2. Intestinal bypass or gastrectomy
3. Chronic malabsorption
4. Low body weight (>10% below ideal body weight)

VII. Children and adolescents < 18 years of age exposed to adults with the above high risk characteristics.

VIII. Residents and employees of the following high risk congregate settings: prison and jails, nursing homes, and other long-term facilities for the elderly, residential facilities for patients with AIDS, and homeless shelters; other homeless persons; employees of hospitals and other health care facilities. In some jurisdictions, local epidemiology and limited resources may necessitate the use of an age cutoff for some populations.

IX. Persons with a positive tuberculin skin test who are not in the above categories.

Local epidemiologic circumstances and resources may define some populations such as persons abusing substances other than injection drugs (e.g. alcoholics and crack cocaine users) or other groups at risk for TB infection for whom treatment is indicated. There may be some of these populations for which an age cutoff is appropriate.

Indications for Treatment of LTBI – TB1 (See **Appendix 2**)

Close Contacts

In close contacts to infectious cases, the initial tuberculin skin test may be negative despite underlying infection with *M. tuberculosis* if the TST is placed before the contact has mounted an immune response to the tuberculin antigen. It takes 2-12 weeks after infection with *M. tuberculosis* to develop a positive TST reaction.

Close contacts (TB1) to an infectious case, who have a tuberculin skin test < 5 mm, should have a chest radiograph obtained, and once TB disease is excluded, should be started on therapy for LTBI regardless of age if (See CDHS/CTCA, "Contact Investigation Guidelines."):

I. Circumstances suggest a high probability of infection. For example, evaluation of other contacts

with a similar degree of exposure demonstrates a high prevalence of infection, documented converters, or secondary cases.

II. The contact is a child under 5 years of age, or is infected with HIV, or is otherwise immune-compromised.

For those individuals who are started on therapy with a TST < 5 mm, a repeat tuberculin skin test should be performed 10 to 12 weeks after contact with the infectious case has been broken, or the index case becomes non-infectious, to determine if the skin test has become positive. Decision on continuing therapy should be made once the result of repeat skin testing is available.

> **Note:** In HIV infected contacts, treatment should be completed, regardless of the result of the repeat skin test.

Treatment Regimens (See **Appendix 3,** for drug dosages)

I. INH alone:

A. 6-9 months for immune-competent adults. While a 9-month regimen may provide a greater degree of protection, individual programs may choose to give 6 months of INH due to operational considerations (e.g., resources, adherence issues, etc.)

B. 9 month regimen for children and adolescents (up to age 16 - 18).

C. 9 month regimen for HIV-infected persons or persons suspected of having HIV infection

D. 9 month regimen for TB 4 (See also **below,** IV)

II. RIF and PZA for 2 months. This option may be preferred when longer therapy may not be feasible, (such as for jail inmates or homeless patients) and when the patient can be monitored closely. It may also be useful in persons exposed to INH resistant, RIF sensitive TB cases, when the individual is INH intolerant, or in HIV infected individuals for whom clinical trials have demonstrated the regimen's efficacy. RIF-PZA is not recommended for persons with underlying liver disease or for those who have had INH-associated liver injury. The 2-month RIF-PZA treatment regimen for LTBI should be used with caution, especially in patients concurrently taking other medications associated with liver injury, and those with alcoholism, even if alcohol use is discontinued during treatment. This regimen is not included in the list of accepted regimens of treatment for LTBI in children under the age of 18.

III. Rifampin alone for 4-6 months. This regimen has not been studied in randomized trials so it should be reserved for those individuals who cannot tolerate INH or PZA. For persons exposed to cases with mono-resistance to INH, the 2-month regimen of RIF and PZA is recommended. For persons who cannot tolerate PZA, a 4-6 month regimen of rifampin may be used.

IV. INH and RIF for 4 months for TB 4. Although there have been no randomized studies to document the efficacy of this regimen in persons classified as TB 4, there is a great deal of experience with this regimen in the public health sector.

V. Rifabutin may be substituted for rifampin in the above regimens in situations where rifampin cannot be given such as in HIV-infected persons taking certain protease inhibitors or non-nucleoside reverse transcriptase inhibitors. Dosage adjustments may, however, be necessary. An expert should be consulted.

VI. Regimens for Contacts to Drug Resistant Cases

A. INH mono-resistant source case
For contacts to cases of INH mono-resistance, the 2-month regimen of RIF and PZA is recommended. For persons who cannot tolerate PZA, a 4-6 month regimen of rifampin may be used.

B. Multidrug resistant source case
PZA and EMB, or PZA and a flouroquinolone for 6-12 months for high risk contacts, e.g. immune-compromised persons exposed to MDR-TB cases. These regimens should be given only after TB disease has been ruled out and provided that the organism isolated from the source case is susceptible to PZA, EMB or flouroquinolones. An expert should be consulted.

Daily vs. Intermittent Dosing

Both INH and RIF/PZA regimens may be given daily or intermittently. Although the daily RIF/PZA regimen is preferred over the intermittent regimen, individual programs may choose to give the intermittent regimen for operational considerations (e.g., resources, adherence issues, etc.). When the RIF/PZA regimen is given intermittently, the current recommendation is to consider a 3-month duration of therapy. *When any of the above regimens are given intermittently, they must be administered as directly observed therapy (DOT), only.*

Directly Observed Therapy

Directly observed therapy (DOT) for LTBI should be used in circumstances where the risk of non-adherence is judged to be high or when the treatment regimens are given intermittently. New short course regimens and intermittent dosing may make DOT more feasible.

Monitoring for Drug Toxicity and Adherence

I. Baseline Evaluation

A. All patients taking RIF-PZA should have a serum transaminase (AST or ALT) and bilirubin at baseline. With the other regimens for LTBI, baseline laboratory testing is not routinely indicated, even for those over 35 years of age. Such testing may, however, be considered on an individual basis. Persons with the following high-risk characteristics should have baseline laboratory testing:

1. HIV infection
2. History of, or at risk of, chronic liver disease
3. Alcoholism
4. Taking other hepatotoxic medications

Note: Some experts recommend that pregnant women and those in the immediate post-partum period (within 3 months of delivery) have baseline liver function tests measured, also.

B. The baseline laboratory tests will depend on which drug regimen is being used.

1. Isoniazid-containing regimen –If baseline laboratory tests are indicated, a serum AST or ALT and bilirubin should be included.
2. Rifampin (or rifabutin) -containing regimen – In persons taking a rifamycin, baseline measurements of complete blood count and platelets are recommended, in addition to liver function tests.
3. Pyrazinamide-containing regimen – same as rifampin-containing regimen. A baseline uric acid level is not necessary unless the patient has a history of gout.

II. Evaluation During Treatment

A. Clinical Evaluation – Patients being treated for LTBI should receive a clinical evaluation at least monthly, regardless of the regimen used. The evaluation should include careful in person questioning of the patient about side effects associated with the medications, particularly hepatitis (e.g., anorexia, malaise, abdominal pain, fever, nausea, vomiting, dark urine, icterus). In addition, the patient should be asked about adherence and educated about the possible side-effects of the medications.

B. Rifampin and pyrazinamide containing regimens require more frequent monitoring. The CDC recommends that patients taking a rifampin-pyrazinamide regimen be reassessed in person by a health care provider at weeks 2, 4, 6 and 8 of therapy

At each visit, health care providers conversant in the patient's language (or with an appropriate interpreter) should instruct patients to stop taking RIF-PZA immediately and seek medical consultation if anorexia, nausea, abdominal pain, emesis, jaundice, or other hepatitis symptoms develop. Provider continuity is recommended for monitoring. No more than a 2-weeks supply of RIF-PZA (with a PZA dose of 15-20 mg/kg/d and a maximum of 2 gm/d) should be dispensed at a time to facilitate periodic clinical assessments.

A serum AST or ALT and bilirubin should be measured at baseline and at 2, 4, and 6 weeks of treatment in patients taking RIF-PZA. Because some side effects may occur in the second month of treatment, patients should be monitored throughout the entire course of treatment. Asymptomatic serum AST or ALT increases are expected and usually do not require that treatment be stopped. However, treatment should be stopped and not resumed for any of these findings:

- AST or ALT greater than five times the upper limit of normal range in asymptomatic persons
- AST or ALT greater than normal range when accompanied by symptoms of hepatitis
- Serum bilirubin greater than normal range.

C. For regimens other than RIF-PZA, routine laboratory monitoring during treatment of LTBI is indicated for those whose baseline liver function tests are abnormal, for persons at high risk of hepatic disease, or persons with symptoms of hepatitis. The frequency of this monitoring will vary depending on the person's risk of liver disease and the severity of the liver function test abnormalities.

Note: Some experts recommend that pregnant women and those in the immediate post-partum period (within 3 months of delivery) have repeat liver function tests measured, also.

Medications should be stopped if the transaminase levels exceed 3-4 times the upper limit of normal if associated with symptoms and 4-5 times the upper limit of normal if the patient is asymptomatic. Medication should be held pending clinical laboratory results.

Note: Any cases of severe liver injury (leading to hospitalization or death) in persons receiving any regimen for LTBI should be reported to the Surveillance and Epidemiology Section of the California Department of Health Services, TB Control Branch at (510) 540-2973, and will be forwarded to the Centers for Disease Control.

Completion of Therapy

Completion of therapy should be based on the total number of doses administered–not on duration of therapy. If treatment is interrupted the recommended number of doses of the regimen should be provided within a certain maximum time period (See **Appendix 3**). The entire regimen should be restarted if interruptions were frequent or prolonged enough to preclude completion of doses in the time frames specified. When therapy is restarted after an interruption of more than 2 months, a medical examination to exclude active disease is indicated.

Note: No set of guidelines can cover all individual treatment situations that can and will arise. Thus, when questions on individual situations not covered by these guidelines do arise, consult with the Local TB Control Program, the California Department of Health Services, TB Control Branch, or the Tuberculosis Warmline, for further information.

Suggested Readings

1. American Academy of Pediatrics. 2000. Tuberculosis. *In* Red Book: Report of the Committee on Infectious Diseases, 25th ed. American Academy of Pediatrics, Elk Grove Village IL.

2. American Thoracic Society / Centers for Disease Control and Prevention. Treatment of tuberculosis and tuberculosis infection in adults and children. Am J Respir Crit Care Med 1994; 149: 1359-1374.

3. American Thoracic Society / Centers for Disease Control and Prevention. Targeted skin testing and treatment of latent tuberculosis infection. Am J Respir Crit Care Med. 2000 161: S221-S247.

4. American Thoracic Society / Centers for Disease Control and Prevention. Diagnostic standards and classification of tuberculosis in adults and children. Am J Respir Crit Care Med 2000;161:1376-1395.

5. Centers for Disease Control and Prevention. Notice to readers. Updated guidelines for the use of rifabutin or rifampin for the treatment and prevention of tuberculosis among HIV-infected patients taking protease inhibitors or nonnucleoside reverse transcriptase inhibitors. MMWR 2000;49:185-189.

6. Centers of Disease Control and Prevention. Update. Fatal and Severe Liver Injuries Associated with Rifampin and Pyrazinamide for Latent Tuberculosis Infection and Revisions in American Thoracic Society/CDC Recommendations – United States, 2001. MMWR 2001; 50.

7 Zuber PLF, McKenna MT, Binkin NJ, Onorato IM, Castro KG. Long-term risk of tuberculosis among foreign-born persons in the United States. J.A.M.A. 1997;278:304-307.

Appendix 1

High Risk Populations

Table 1. Incidence of Active TB in Persons with a Positive TST by Selected Factors

Risk Factor	TB Cases/1000 person-years
Infection > 2 years past	1.6
Infection < 1 year past	12.9
HIV Infection	35.0-162.0
Injection Drug Use	
HIV seropositive	76.0
HIV seronegative or unknown	10.0
Silicosis	68
Radiographic findings consistent with old TB	2.0-13.6

Source: American Thoracic Society/Centers for Disease Control and Prevention, 2000

Table 2. Certain medical conditions associated with an increased risk of developing TB

Medical Condition	Relative Risk
Solid organ transplant	
Renal	37
Cardiac	20-74
Jejunoileal bypass	27-63
Silicosis	30
Chronic Renal Failure/Hemodialysis	10.0-25.3
Carcinoma of head and neck	16
Gastrectomy	2-5
Diabetes mellitus	2.0-4.1

Source: American Thoracic Society/Centers for Disease Control and Prevention, 2000

Appendix 2

CANDIDATES FOR TREATMENT OF LATENT TUBERCULOSIS INFECTION (LTBI) (adapted from Charles P. Felton National TB Center)			
Category of person tested	TST <5 mm	TST =5 mm	TST =10 mm
(A) Recent Contact to TB Case [1]			
1. Child <5 years and recent contact[2]	TREAT	TREAT	TREAT
2. HIV-infected and recent contact[2]	TREAT	TREAT	TREAT
3. Immunosuppressed and recent contact[2]	TREAT	TREAT	TREAT
4. Other recent contact of TB case	Do Not Treat	TREAT	TREAT
(B) No Recent Contact to TB Case			
1. Fibrotic changes on chest X-ray[3]	Do Not Treat	TREAT	TREAT
2. HIV-infected	Do Not Treat	TREAT	TREAT
3. Injection drug user with unknown HIV status	Do Not Treat	TREAT	TREAT
4. Other immunosuppressed persons[4]	Do Not Treat	TREAT	TREAT
5. Recent skin test converters within 2 years	Do not Treat	Do Not Treat	TREAT
6. Foreign-born persons from endemic country[5]	Do Not Treat	Do Not Treat	TREAT
7. Injection drug user known to be HIV negative	Do Not Treat	Do Not Treat	TREAT
8. Resident/Employee institutional setting[6]	Do Not Treat	Do Not Treat	TREAT
9. Mycobacteria lab personnel	Do Not Treat	Do Not Treat	TREAT
10. High-Risk clinical conditions[7]	Do Not Treat	Do Not Treat	TREAT
11. Children < 18 years of age exposed to adults at high risk	Do Not Treat	Do Not Treat	TREAT
12. Other persons depending on local epidemiology and resources	Do Not Treat	Do Not Treat	TREAT

Note: If a person meets more than one criteria for treatment, the lower TST cut point for therapy should be used (i.e. an immigrant from a TB endemic country who has fibrotic changes on chest radiograph should be treated if the TST is = 5 mm induration)

[1] Recent contacts to active case of pulmonary or laryngeal TB.

[2] Recent contacts who are initially TST-negative should have a TST repeated 8-12 weeks after last exposure to TB case (see Text). Treatment can usually be discontinued after negative second TST in children. HIV infected adults and children, however, should receive full course of therapy regardless of TST result.

[3] Abnormal, stable, radiographic findings (parenchymal abnormalities consistent with TB, not isolated calcified granuloma or apical pleural thickening). Bacteriologic studies should be obtained for all persons with an abnormal chest radiograph consistent with TB even when the radiographic abnormalities appear stable. When bacteriologic studies are obtained, treatment of LTBI should not be initiated until final culture results are available.

[4] Transplant recipients, prolonged corticosteroid therapy (=15 mg/day for =1 month), other immunosuppressive therapy

[5] Local epidemiologic circumstances and resources should determine whether a specific age cutoff is warranted in persons who have resided in the U.S. for over 5 years.

[6] Residents and employees of the following high risk congregate settings: prisons and jails*, nursing homes and other long-term facilities for the elderly, residential facilities for patients with AIDS, homeless shelters; other homeless persons; employees of hospitals and health care facilities.

*The California Department of Corrections considers all inmates high risk, and therefore treats for latent infection all inmates = 5mm.

[7] Silicosis, diabetes mellitus, chronic renal failure, some hematologic disorders (e.g. leukemias and lymphomas), other specific malignancies (e.g. carcinoma of the head and neck or lung), weight loss of = 10% of ideal body weight, gastrectomy, jejunoileal bypass.

Pregnancy: Treat during pregnancy if either HIV-infected or recent *M.tb* infection.

Appendix 3

Recommended Drug Treatment Regimens For Treatment of LTBI

Drug	Interval & Duration	Adult Dose (max)	Pediatric Dose (max)	Criteria for Completion	Monitoring	Comments
INH	Daily for 9 months	5 mg/kg (300 mg)	10-20 mg/kg (300 mg)	270 doses within 12 months	Clinical monitoring monthly. Liver function tests[1] at baseline in selected cases[2] and repeat measurements if baseline tests are abnormal, patient is at high risk for adverse reactions, or patient has symptoms of hepatitis.	Preferred regimen for all persons. In HIV-infected patients, INH may be administered concurrently with NRTIs, protease inhibitors, or NNRTIs
	Twice-weekly for 9 months	15 mg/kg (900 mg)	20-40 mg/kg (900 mg)	76 doses within 12 months	**{tc “”}**	DOT must be used with twice-weekly dosing **{tc”DOT must be used with twice - weekly dosing”}**
INH	Daily for 6 months	5 mg/kg (300 mg)	nr	180 doses within 9 months		Alternate regimen for adults.
	Twice- weekly for 6 months	15 mg/kg (900 mg)	nr	52 doses within 9 months	**{tc””}**	DOT must be used with twice-weekly dosing **{tc”DOT must be used with twice - weekly dosing”}**
RIF plus PZA	Daily for 2 months	RIF 10mg/kg (600 mg) PZA 15-20 mg/kg (2.0 g)	nr	60 doses within 3 months	Clinical monitoring at baseline, weeks 2, 4, 6 and 8. Liver function tests[1] at baseline and at 2, 4, and 6 weeks for all patients on this regimen.	Alternate regimen for adults. In HIV-infected patients, certain protease inhibitors or NNRTIs should not be administered concurrently with RIF; an alternative is rifabutin 300 mg daily. Preferred regimen for persons exposed to INH-resistant, RIF susceptible TB. RIF-PZA is not recommended for persons with underlying liver disease or for those who have had INH-associated liver injury. The 2-month RIF-PZA treatment regimen for LTBI should be used with caution, especially in patients concurrently taking other medications associated with liver injury, and those with alcoholism, even if alcohol use is discontinued during treatment. This regimen is not included in the list of accepted regimens of treatment for LTBI in children under age 18.
RIF	Daily for 4 – 6 months	10 mg/kg (600 mg)	10-20 mg/kg (600 mg)	120 doses within 6-8 months	Clinical monthly monitoring Complete blood count, platelets, and liver function tests[1] at baseline in selected cases[2] and repeated measurements if baseline results are abnormal or patient has symptoms of adverse reactions	Alternate regimen for adults. For persons exposed to INH resistant, RIF susceptible TB and those who cannot tolerate PZA.
INH plus RIF	Daily for 4 months	INH 5 mg/kg (300 mg) RIF 10mg/kg (600 mg)		120 doses within 6 months	See INH and RIF	Alternate regimen for TB Class 4 (history of previous TB or abnormal but stable radiographic findings without evidence of active TB.)

Abbreviations: INH = isoniazid, RIF = rifampin, PZA = pyrazinamide, NRTIs = nucleoside reverse transcriptase inhibitors, NNRTIs = non-nucleoside reverse transcriptase inhibitors, DOT = directly observed therapy, nr = not recommended

Pregnancy: INH regimens preferred for pregnant women. Some experts would use RIF plus PZA as an alternate regimen in HIV-infected pregnant women. PZA should be avoided during the first trimester.

MDR-TB exposure: For persons who are likely to be infected with INH and RIF (multi-drug) resistant TB and at high risk of reactivation, PZA and ethambutol or PZA and a fluoroquinolone are recommended depending on the sensitivities of the M. tb isolate. (Consult expert.)

[1] AST or ALT and serum bilirubin

[2] HIV Infection, history of liver disease, alcoholism, and pregnancy

Appendix 4
Definitions and Abbreviations

1. LTBI — Latent tuberculosis infection

2. TB1 — Tuberculosis exposure--no evidence of infection
   - History of exposure
   - Negative reaction to tuberculin skin test

3. TB2 — Tuberculosis infection--no disease
   - Positive reaction to tuberculin skin test
   - Negative bacteriologic studies (if done)
   - No clinical, bacteriological, or radiographic evidence of current disease

4. TB3 — Tuberculosis disease--clinically active
   - *Mycobacterium tuberculosis* cultured (if done)
   - Clinical, bacteriological, or radiographic evidence of current disease

5. TB4 — Tuberculosis--not clinically active
   - History of episode(s) of tuberculosis, **or**
   - Abnormal but stable radiographic findings
   - Positive reaction to the tuberculin skin test
   - Negative bacteriologic studies (if done), **and**
   - No clinical or radiographic evidence of current disease

6. TB5 — Tuberculosis disease suspected
   - Diagnosis pending

7. CDC — Centers for Disease Control and Prevention

8. TST — Tuberculin skin test

9. LAC — Los Angeles County

10. DHS — Department of Health Services

11. TBC — Tuberculosis Control Program

12. DOT — Directly observed therapy

13. ATS — American Thoracic Society

Appendix O. Health Officer's Orders (LODOT, Detention)

LOS ANGELES COUNTY, DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH PROGRAMS AND SERVICES
TUBERCULOSIS CONTROL PROGRAM

Commonly-Used TB Regulations

Regulation	Description
H&SC 121361	Approval of discharge of TB suspects/cases from health, detention, or state correctional facilities (Gotch)
H&SC 121362	Reporting by health care providers of TB suspects or cases
H&SC 121363	Contact investigation
H&SC 121364	Health officer order for examination
H&SC 121365	Health officer's orders
Subsection (a)	Order authorizing the removal to, detention in, or admission into, a health or other treatment facility for examination of a TB suspect who is unwilling or unable to voluntarily submit to examination
Subsection (b)	Order requiring a person who has active TB disease to complete an appropriate prescribed course of medication
Subsection (c)	Order requiring a person who has active TB disease to complete an appropriate prescribed course of medication given by directly observed therapy
Subsection (d,e)	Civil order of detention for TB to separate the TB case from others (d) and to treat the patient (e)
Subsection (f)	Order for exclusion from attendance at the workplace for persons with infectious TB disease
Subsection (g)	Order for home isolation
H&SC 121366 – 121369	Due process for health officer's orders
CCR 2500	Reporting diseases and conditions as required to the local health authority
CCR 2501	Investigation of a reported case, unusual disease, or outbreak of disease
CCR 2502	Reports by local health officer to state department of health services
CCR 2502	Report by health care provider of out-of-state laboratory findings
CCR 2505	Notification by laboratories
CCR 2508	Reporting by schools

*H&SC = California Health & Safety Code
+CCR = California Code of Regulations

LOS ANGELES COUNTY, DEPARTMENT OF HEALTH SERVICES
PUBLIC HEALTH PROGRAMS AND SERVICES
TUBERCULOSIS CONTROL PROGRAM

Procedure for Initiating an Order to Complete a Course of Directly Observed Therapy (DOT)

Background:

Section 121365 of the California Health and Safety Code allows "each local health officer" to "issue any orders he or she deems necessary to protect the public health..." Section 121365(c) allows a local health officer to issue "an order requiring a person who has active tuberculosis disease and who is unable or unwilling to complete an appropriate prescribed course of medication for tuberculosis disease to follow a course of directly observed therapy." This order "does not allow forceable or involuntary administration of medication."

Objective:

To encourage persons documented to have evidence of active TB disease to comply with a prescribed course of directly observed therapy (DOT).

Procedure:

1. The Public Health physician must document that the patient has evidence of active, infectious TB, and that the patient thus poses a threat to the public's health. Evidence supporting the diagnosis of infectious TB must be included.

2. The Public Health physician must document all less-restrictive measures that have failed to result in the patient complying with DOT, and why a less-restrictive alternative is being rejected. Such less-restrictive measures may include: food vouchers, housing arrangements provided by TB Control Program, and transportation vouchers. The Public Health physician must also document dates and descriptions of the patient's past or present behavior that indicates he or she has not complied with DOT. Examples of noncompliance include broken clinic appointments and missed doses of DOT.

3. The Public Health physician shall submit evidence of noncompliance and failure of less-restrictive measures to the Area Medical Director (AMD) for review and approval.

4. If approved by the AMD, the Public Health physician shall call a TB Control Program (TBC) physician to discuss the aforementioned information. If the TBC physician agrees that a LODOT is warranted, the TBC physician will instruct TBC Detention Coordinator to send a blank LODOT to the Public Health Physician.

5. On the LODOT form, the Public Health physician shall document instances of the patient's noncompliance as described above (point #2). The Public Health physician must also specify the anti-TB regimen that is currently prescribed for the patient and the recommended duration of treatment (e.g., Rifamate daily until June 30, 2002).

6. The Public Health physician shall send the completed form to the TBC Detention Coordinator who will bring the LODOT to the Director of TBC or his/her designee for review and signature.

7. The TBC Detention Coordinator will then return the signed form to the Public Health physician who is responsible for serving the order to the patient in person in the clinic. Even if the patient refuses to sign, the document must be signed and dated by the Public Health physician and a translator or witness. A copy of the signed LODOT shall be given to the patient, a second copy shall be given to the TBC Detention Coordinator, and the original signed document must be filed in the patient's chart.

   Note: This procedure should not involve Public Health Investigators unless the patient must first be located and brought to clinic in order to be served with a LODOT by the Public Health Physician.

COUNTY OF LOS ANGELES
DEPARTMENT OF HEALTH SERVICES
TUBERCULOSIS CONTROL PROGRAM
2615 S. Grand Avenue, Room 507
Los Angeles, CA 90007
213-744-6160 Telephone
213-749-0926 FAX

LEGAL ORDER OF DIRECTLY OBSERVED THERAPY

Date Issued: _____

PURSUANT TO THE AUTHORITY IN THE CALIFORNIA HEALTH AND SAFETY CODE SECTION 121365(c), THE HEALTH OFFICER OF THE COUNTY OF LOS ANGELES HEREBY ISSUES A LEGAL ORDER OF DIRECTLY OBSERVED THERAPY.

THIS ORDER SHALL REMAIN IN EFFECT UNTIL THE COMPLETION OF THERAPY ON _____.
Date

The Health Officer has determined there is reasonable clinical evidence to believe that you have active tuberculosis. You are hereby ordered to follow a course of directly observed therapy on the following schedule and under the following terms and conditions:

_____

_____

The assessment of the circumstances regarding the necessity for this Legal Order of Directly Observed Therapy, including less restrictive alternatives that were attempted and unsuccessful or considered and rejected, are as follows:

_____

_____

Failure to comply with this order may subject its recipient to further orders of the Health Officer including a Legal Order of Civil Detention.

ORDER ISSUED TO:

Name of Person: _____ **Date of Birth:** _____

Address: _____

TB Clinician Signature: _____ **Date:** _____

Translator/Witness Signature: _____ **Date:** _____

Health Officer Signature: _____ **Date:** _____

Los Angeles County Tuberculosis Control Program

Detention Communication Protocol

Table of Contents

Los Angeles County Tuberculosis Control Program
Detention Communication Protocol

I. GENERAL PROCEDURES

A. A LODOT is a less restrictive measure that must have been issued to the patient prior to requesting a Civil Order of Detention.

B. All requests for a civil order of detention must be initiated by a call to a TBC physician or by submitting an H-455 ***Request for Legal Intervention*** to the TBC Program's Supervising Public Health Investigator (SPHI).

C. For all proposed detentions, a ***Checklist In Support Of a Request for a Civil Order of Detention*** must be completed by the person who is requesting detention.

II. INITIAL DETENTION OF PATIENT MANAGED BY SPA:

A. Responsibilities of the TBC-SPHI:

1. The TBC-PHI will consult with the Director of TB Control or his/her designated TBC physician to determine if there is sufficient cause to serve an order of detention.

2. If it is determined that a detention order is indicated and after bed availability has been confirmed, the TBC-SPHI will assign staff to serve the order and transport the patient to the facility determined as appropriate by the physician. Please see Attachment 1, ***Steps For Processing and Serving a Civil Order of Detention.***

3. The TBC-PHI who served the order is responsible for giving a copy of the detention order and the **Advisement/Waiver of Rights** form to the detention coordinator the same day that the order was served or before 9:00 a.m. the following business day.

4. File criminal complaints on patients who violate legal orders.

5. Arrest violators and transport them to custody facility.

6. Appear in court as necessary.

7. Provide relevant information about the patient's criminal court hearings to the detention coordinator and the Director of TB

Control (or his/her designee) so that this information may be shared with county counsel and a decision may be made about whether or not to serve the patient with a civil order of detention upon his or her release from jail. Such information will include dates of hearings, outcomes of court hearings and pending release dates.

8. Monitor summary probation of patients convicted of violations of the Health and Safety Code.

9. Convey to appropriate Deputy District Attorney staff the LAC-TB Control Program's recommendations regarding the disposition of detention cases who are under the jurisdiction of the criminal justice system.

10. Convey to appropriate Deputy District Attorney staff the LAC-TB Control Program's recommendations regarding the disposition of detention cases who are under the jurisdiction of the criminal justice system.

B. Responsibilities of the Designated TBC Physician:

1. After it has been determined that there is sufficient evidence to support a civil order of detention, the designated TBC physician will sign the detention order, fill in the appropriate information, and give it to the TB Control SPHI.

2. It is the responsibility of the designated TBC physician to give a copy of the "Checklist in Support of a Civil Order of Detention" to the detention coordinator.

3. The designated TBC physician is responsible for assigning the TBC Staff to confirm bed availability in the facility selected as appropriate for the detention; TBC staff will discuss the proposed detention case with the applicable staff within the selected facility and by notify the TBC-SPHI that such arrangements have been confirmed.

4. The designated TBC physician is responsible for assigning the TBC staff to provide a summation of all activities surrounding detention to members of the TB Control Program's weekly detention meeting. In addition, if the patient has MDR-TB, this information will be presented at the weekly MDR-TB Conference following the detention meeting.

5. The designated TBC physician, in concurrence with the Director of TB Control, may lift a detention order prior to its expiration if the circumstances

warrant this action. In the case of MDR-TB, the case should be presented for discussion at the weekly MDR-TB Conference and a sufficient consensus reached before the detention order is rescinded. If a Civil Order of Detention has been rescinded, a letter from TB Control must be issued to the patient indicating the revocation of the order. The patient should be inform, then sign the letter rescinding the detention order.

C. Responsibilities of the Detention Coordinator:

1. The detention coordinator is responsible for providing copies of all necessary documentation regarding the detention to county counsel. This documentation includes:

a) Detention order
b) Advisement/Waiver of Rights
c) Physician Summary
d) Checklist in Support of Detention

2. The detention coordinator is responsible for ensuring that the original, signed **Declaration of the TB Controller/Health Officer** is returned to county counsel.

3. The detention coordinator will discuss with county counsel the need for an expedited court hearing and the need for appointed defense counsel (as indicated by the patient on the **Waiver/Advisement of Rights** form.)

4. The detention coordinator will fax the detention order, **Advisement/Waiver of Rights** form, and the **Physician Summary** to the appropriate healthcare provider.

5. As the detention process proceeds, the detention coordinator is responsible for keeping the designated TBC physician and the other healthcare providers informed of the status of the detention process. If the patient has MDR-TB, the detention coordinator will keep the MDR-TB staff informed.

6. The detention coordinator is responsible for notifying county counsel, the TBC-SPHI, public health center staff, the hospital TB liaison nurse, and MDR-TB staff if applicable, if a detention order is lifted by TBC physician prior to the next court hearing.

7. The detention coordinator will keep the TB Control physician staff and other administrative personnel informed of upcoming court dates.

D. Responsibilities of County Counsel

1. County counsel will prepare a **Declaration of the TB Controller/Health Officer** and submit it to the Director for his/her designee for his/her review and signature.

2. After county counsel receives the original, signed **Declaration**, county counsel will prepare an **Ex-Parte Application,** attach the **Declaration** to it, and submit it to the court. If the court concurs with the need for continued detention, the court will execute a court order authorizing the continued detention.

3. County counsel will keep the detention coordinator informed as to the name of appointed counsel, dates of court hearings, the need for clarification of information provided, and/or the need for witnesses necessary to facilitate the presentation of the County's case.

4. County counsel will fax court orders to the detention coordinator when they become available.

5. For patient's who are detained at HDH or AVRC, county counsel will send the court order directly to the Administrator of High Desert Hospital or the Director of AVRC so that these individuals can designate a person to give the court order to the patient.

III. HOSPITAL-BASED PHYSICIAN OR TB LPHN REFERRALS FOR INITIAL DETENTION

A. The TB Control hospital liaison nurse or hospital-based physician will initiate detention requests by calling a TBC physician.

B. If the TBC physician agrees that a detention order is warranted, and the Director of TBC concurs, that TBC physician will inform the TBC Program SPHI of the need to serve a civil order of detention.

C. It is the responsibility of the hospital-based physician who is seeking the civil order of detention to complete the **Checklist in Support of a Request For a Civil Order of Detention** and fax it to the designated TBC Physician.

D. All other procedures which are applicable under the section of this protocol titled **Initial Detention of a Patient Managed by SPA** are applicable to LPHN or hospital-based physician referrals.

IV. PHI REFERRALS FOR INITIAL DETENTION

A. All detention orders must be signed by the Director or his/her designee prior to the actual serving of the order.

B. Refer to Attachment 1, **Steps for Processing and Serving a Civil Order of Detention** for additional details.

C. All other procedures which are applicable under the section of this protocol titled **Initial Detention of a Patient Managed by a SPA** are applicable to a TBC SPHI referral.

V. RENEWAL OF COURT ORDER AUTHORIZING DETENTION

A. Responsibilities of the Detention Coordinator:

1. The detention coordinator will convene a meeting with the TBC physician staff one week prior to the hearing date to ascertain if renewal of the detention order will be sought and/or to accommodate or formulate a rebuttal to the motion(s) of the patient's counsel.

2. The detention coordinator will inform county counsel of the results of these consultations when county counsel cannot participate in the deliberation to formulate the approach.

3. The detention coordinator will notify appropriate SPA and TBC staff of the results of the court hearing.

4. If the patient has MDR-TB, a summation of all activities regarding the renewal and/or revision of the detention order will be presented at the MDR-TB Conference following judicial review.

B. Responsibilities of the Designated TBC Physician:

1. The designated TBC physician will inform the Area Medical Officer about decisions made regarding the renewal, suspension, or revision of the detention order.

2. The designated TBC physician will work with the Detention Coordinator to provide a summation of all activities regarding the renewal and/or revision of the detention order to all members of the weekly detention meeting including lessons learned to improve this process.

VI. ADDITIONAL DETENTION POLICIES AND PROCEDURES:

A. The TBC SPHI, detention coordinator, and designated physician are responsible to name an alternate staff member to assume his/her responsibilities relative to detention for such events as a RDO, sick leave, or scheduled vacation time.

B. The Director of TB Control or the designated TBC physician will be available to consult with county counsel if necessary during each scheduled judicial review.

C. Detention patients who are determined by a physician to be in the acute phase of a mental illness will be sent to Olive View Medical Center for detention. Neither High Desert Hospital nor the Antelope Valley Rehabilitation Centers can accommodate acutely-ill psychiatric patients.

D. Criminal court "diversion" patients will be served a civil order of detention if they are diverted back to High Desert Hospital or the Antelope Valley Rehabilitation Centers by the criminal court as soon as they are released from jail.

E. If a patient demonstrates behavioral problems while at HDH, the patient will be placed on electronic monitoring.

F. If TBC PHI staff are called in, a patient under a civil order of detention is to be taken to jail when located by PHI staff the first time he or she absconds from HDH or AVRC or otherwise violates the conditions imposed on him by electronic monitoring.

G. All court orders will have the proviso that the patient can be electronically monitored while at High Desert Hospital.

H. The detention coordinator is responsible for making court orders available to designated HDH and AVRC staff.

Approved by: [Signature on File] Date: _____

Annette T. Nitta, M.D.
Director, TB Control Program

Attachment 1

LOS ANGELES COUNTY TUBERCULOSIS CONTROL PROGRAM
PROCEDURES FOR PROCESSING AND SERVING A CIVIL ORDER OF DETENTION

PROCEDURE FOR PROCESSING A CIVIL ORDER OF DETENTION:

1. The district public health physician who requests the civil order of detention is responsible for completing the ***Checklist in Support of a Request for a Civil Order of Detention*** and faxing it to the TBC physician who is responsible for detention. If the detention is initiated by a TBC Program physician, that physician is responsible for completing the ***Checklist***.

2. The district public health physician responsible for issuing the detention compiles a memorandum which outlines the facts in support of the Civil order of Detention (also called a ***Justification***). (See "Procedure for Writing the Physician=s Summary for Patients Requiring Detention Issued by the TB Control Program and County Counsel July, 10, 2002")

3. The Director of TB Control agrees (or disagrees) that there is sufficient evidence to support a civil order of detention.

4. If the Director of TB Control agrees that the detention is warranted, the detention coordinator completes the appropriate information on the detention order and ***Waiver/Advisement of Rights*** form and gives it to the Director of TB Control or his/her designee to sign.

5. The detention coordinator gives the signed detention order that specifies the detention site **and** a signed detention order that does not specify an address in the event the detainee is taken to a different detention site to the Supervising Public Health Investigator (SPHI).

6. The SPHI assigns staff to serve the patient the detention order along with the ***Waiver/Advisement of Rights*** form.

7. After the PHI serves the detention order and the **Waiver/Advisement of Rights** forms, the detention coordinator faxes the order of detention, the ***Waiver/Advisement of Rights*** form, and the written justification in

support of the order of detention to the deputy county counsel who is assigned to the TBC Program.

8. County counsel may consult with TBC physician staff to gather additional background information and other facts pertinent to the case.

9. County counsel prepares a ***Declaration of the TB Controller/Health Officer*** and submits it to the TB Controller for his review and signature. (The ***Declaration*** is a document in which the TB Controller affirms that there is sufficient evidence to support a civil order of detention.)

10. The original, signed ***Declaration*** is returned to the deputy county counsel=s office via messenger.

11. County counsel prepares an ***Ex-Parte Petition For Continued Civil Detention of Tuberculosis Patient _____ In a Medical Facility, Appointment of Counsel, and a 90-Day Review of the Order*** and attaches the **Declaration of the TB Controller**. The application for a court order authorizing the continued detention and request for a court hearing must be made within 72 hours after a request for release (excluding weekends and holidays). After a request for release, detention cannot continue for more than five business days in the absence of a court order authorizing detention. If the detainee does not request release, the individual cannot be detained for more than 60 days without a court order authorizing detention (Health and Safety Code, Section 121366).

12. The court issues an ***Order Detaining _____ in a Health Facility.*** (If the court does not authorize the continued detention, the patient must be released.)

13. The Court schedules the next hearing (which must be within 90 days).

14. The detention coordinator faxes the court order authorizing the continued detention to administrative staff at the detention facility. Administrative staff is responsible for giving a copy of the court order to the patient.

PROCEDURE FOR PHI DELIVERY OF A CIVIL ORDER OF DETENTION:

1. The **Civil Order of Detention** and **Advisement/Waiver of Rights** forms will be translated into the language the patient states he/she is most comfortable with as soon as it is reasonable AFTER the patient is delivered to the detention site. The PHI should document the date and time of translation on the form.

2. Even if the **Civil Order of Detention** is discussed with the patient during the transport to the detention site, it will be discussed again as indicated in #1 above.

3. For ALL patients, regardless of detention site, a witness will be required during the reading/translation of the **Civil Order of Detention** and **Advisement/Waiver of Rights** forms and the patient signature process.

    - In the case where an on-site translator is used to translate the documents, the translator should sign in the appropriate space at the bottom of the detention order and **Waiver/Advisement of Rights** forms.

    - When an AT&T operator is used to assist in translation, it will be sufficient to note the operator=s first name and operator number.

    - When no translator is needed because the language the patient states he or she is most comfortable with is English or another language that the PHI is fluent in, a staff member at the detention site who is also fluent in that language should witness the reading and signature process and sign as a witness upon completion of this process.

    - A second PHI=s signature as witness is not a satisfactory substitute for the signature of the persons identified above.

4. When reading the options under the **Waiver/Advisement of Rights**, the PHI, in the presence of the witness, will ask the patient to verbally indicate his or her option.

5. The PHI will not mark on the form to indicate where the patient is to sign to exercise the chosen option. However, the place to sign may be pointed out.

6. If no preference is stated verbally and/or the patient refuses to sign or initial the document, it will be assumed that the patient requests release from the **Civil Order of Detention** and desires court appointed counsel.

7. If the patient does not indicate his or her preference for an option or refuses to sign or initial the document, the PHI will ensure that the witness observes and notes this fact in the appropriate space at the bottom of the **Waiver/Advisement of Rights** form.

8. The PHI will ask the patient and note the name, address, and telephone number of not more than two individuals they would like to have notified of their detention.

9. The PHI will give a copy of the English version of the **Civil Order of Detention** and the **Waiver/Advisement of Rights** form to the patient after the reading and signing process described above is completed. Whenever available, a copy of these forms in the language the patient stated that he/she is most comfortable with will be given to the patient as well.

10. The PHI will give a copy of the **Civil Order of Detention** and **Waiver/Advisement of Rights** to a facility representative at the detention site.

11. The PHI will give a copy of the **Civil Order of Detention**, the **Waiver/Advisement of Rights** form, and the information about the persons the patient wants notified of his or her detention to the detention coordinator at the TB Control Program.

Approved by: [Signature on File] Date: _____

Annette T. Nitta, M.D.
Director, TB Control Program

Los Angeles County • Department of Health Services
Public Health Programs and Services
Tuberculosis Control Program

Procedure for Writing the Physician's Summary for Patients Requiring Detention Issued by the TB Control Program and County Counsel, July 10, 2002

When requesting a civil order of detention, the Public Health physician shall submit a signed document that documents the reason the patient was diagnosed with active TB and the reason the patient is considered infectious. Brief mention of the patient's underlying medical problems (including neuropsychiatric) is also appropriate.

The physician's summary must also document the incidents of noncompliance and related behaviors that show the less restrictive measures have failed (see attached sample). Instances of noncompliant behavior must be listed by date in chronological order. Documentation in the medical chart must support each statement that is made in the summary. (In other words, if the patient was counseled regarding home isolation and the consequences of breaching home isolation, but if the chart contains no documentation that such counseling occurred, this cannot be included in the written summary to support detention.) All supporting documentation in the chart must be dated and signed. Noncompliant behavior documented in other medical charts (e.g. in the hospital) should be included if available.

Examples of the additional information that should be documented in the physician's summary include:

- Broken clinic appointments or refusing to cooperate with necessary medical tests (e.g. sputum collection)
- DOT that was missed and/or refused
- Moving or traveling without notifying the health department and against medical advice
- Not complying with instructions on home isolation or respiratory isolation in a health facility
- Refusal to accept or appropriately use incentives and enablers including food coupons, transportation vouchers, housing
- Returning to work before being given clearance by the physician (in other words, returning to work against medical advice)
- Using public transportation despite being counseled to avoid doing so while infectious

COUNTY OF LOS ANGELES
DEPARTMENT OF HEALTH SERVICES
Public Health

THOMAS L. GARTHWAITE, M.D.
Director of Health Services and Chief Medical Officer

JONATHAN E. FIELDING, M.D., M.P.H.
Director and Health Officer

www.lapublichealth.org

May 16, 2002

To: Robert Ragland, County Counsel

From: P. Health, M.D.
Chest Clinic Physician, Salubrious Health Center

Re: **Patient (D.O.B.)**

Ms. Blank is a 44-year-old Hispanic woman who was diagnosed with active tuberculosis (TB) at Ocean View Medical Center (OVMC) on 2/20/2001. Her medical history is significant for poorly-controlled diabetes mellitus and illicit drug use. A chronologic summary of her TB history follows.

2/19/01: Sputum was smear-positive for acid-fast bacilli (AFB); culture grew *M. tuberculosis* (Mtb).

2/20/01: Patient was admitted to OVMC for cough, night sweats, fever, and weight loss. Chest radiograph (CXR) was noted to show a small right apex fibrotic infiltrate consistent with an old granuloma; more extensive infiltrates were noted in the left apex which could be TB. Sputum was smear-positive for AFB; culture was positive for Mtb. Susceptibility testing demonstrated sensitivity to all drugs tested.

2/21/01: Patient was started on isoniazid (INH) 250 mg/d, rifampin (RIF) 600 mg/d, pyrazinamide (PZA) 1000 mg/d, and ethambutol (EMB) 1000 mg/d.

2/23/01-
2/28/01: Three sputa were collected; all were smear-positive for AFB and all grew Mtb.

3/01/01: Sputum was smear-positive for AFB and grew Mtb. The patient was discharged from OVMC. She was counseled regarding home isolation to prevent transmitting TB to others.

3/02/01: Patient was first seen at Salubrious Health Center to continue TB follow-up and treatment by directly observed therapy (DOT). Sputum was smear-negative for AFB; culture grew Mtb.

3/05/01: The patient could not be located for DOT.

3/06/01: The patient refused DOT.

4/05/01: The patient refused DOT.

4/09/01: The patient refused DOT.

5/14/01: The patient could not be located for DOT.

7/26/01: Sputum was smear-positive for AFB and grew Mtb. Susceptibility testing demonstrated new resistance to PZA and sensitivity to the other drugs tested.

7/31/01: Sputum was smear-positive for AFB and grew Mtb.

8/06/01: The patient could not be located for DOT.

8/09/01: The patient could not be located for DOT.

9/04/01: Sputum was smear-negative for AFB; culture grew Mtb.

9/20/01: The patient refused DOT.

10/29/01: The patient could not be located for DOT.

12/14/01: The patient broke her clinic appointment.

12/18/01: The case was referred to district public health investigator (DPHI) for assistance due to the patient breaking her clinic appointments on 12/14/01 and 12/18/01.

1/14/02: The patient could not be located for DOT.

1/22/02: Sputum was smear-negative for AFB; culture grew Mtb.

3/01/02: Sputum was smear-negative for AFB; culture grew Mtb.

3/04/02: A request to admit the patient to Healthy & Development Hospital (HDH) was initiated. Patient's sputa were noted to be culture-positive for Mtb after several months of negative cultures. Her organism continued to be sensitive to all first-line anti-TB medications.

3/06/02: The patient could not be reached for DOT.

3/15/02: Patient was admitted to HDH and restarted on anti-TB treatment.

3/16/02: Sputum was smear-negative for AFB; culture grew Mtb.

3/19/02: Sputum was smear-positive for AFB; culture grew Mtb. T. Lymph, R.N. reported the patient has diabetes in poor control due in part to non-compliance. Blood sugars ranged between 201-421. The patient was placed on glyburide and metformin along with sliding scale insulin for diabetes control.

3/28/02: Sputum was smear-positive for AFB; culture grew Mtb.

4/2/02-
4/5/02: Three sputa were collected; all were smear-negative for AFB; cultures are pending.

4/09/02: Patient was discharged from HDH with a one-week supply of TB medications. Chest clinic appointment was given for 4/15/02.

4/15/02: Patient broke that day's clinic appointment including subsequent appointments given for 4/17/02 and 4/19/02.

4/23/02: DPHI reported inability to locate the patient.

4/24/02: Documentation to support a civil order of detention was initiated because the patient poses a significant public health threat and is at risk for development of additional drug resistance due to her history of non-compliance with anti-TB treatment. She has received no DOT since being discharged from HDH because she could not be located.

Salubrious Health Center and the Los Angeles County Tuberculosis Control Program are requesting civil detention of this patient for the following reasons:

1. She has missed multiple clinic appointments, specifically on 12/14/01, 12/18/01, 4/15/02, 4/17/02, and 4/19/02.

2. According to the supervising public health nurse at Salubrious Health Center, the patient has missed a total of 33 DOT doses between 2/21/01 and 5/9/02.

3. The patient's organism acquired new resistance to PZA, a first-line anti-TB drug as of 7/26/01.

4. There is no evidence to date that the patient has become noninfectious. Thus, the patient poses a threat to public-health. There is risk that her TB organism may acquire additional drug resistance due to the patient's nonadherence to anti-TB treatment.

Plan for treatment after the patient is located:

1. Place the patient in respiratory isolation in the Health & Development Hospital in Lancaster under a civil order of detention for medical management.

2. Treat with standard doses (appropriate for her weight) of isoniazid, rifampin, and ethambutol given by daily DOT pending repeat susceptibility test results. If the patient's most recent culture of Mtb continues to demonstrate sole resistance to pyrazinamide, she may continue on treatment with standard doses (appropriate for her weight) of isoniazid and rifampin given by DOT.

3. When the patient is determined to be non-infectious, she may be transferred to the Amiable Valley Rehabilitation Center for continued anti-TB treatment and drug rehabilitation.

4. Anti-TB treatment is to continue by DOT for a minimum 6 months after sputum cultures convert to negative for Mtb.

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
TUBERCULOSIS CONTROL PROGRAM

CIVIL ORDER OF DETENTION FOR TUBERCULOSIS

The local health officer has determined that you, [Click and enter name], have tuberculosis, are reasonably suspected of having active tuberculosis, or have been reported as having active tuberculosis without having completed treatment and are noncompliant or are likely to be noncompliant with examination, treatment and/or infection control precautions for active tuberculosis disease.

Therefore, in order to protect the public health, the local health officer hereby orders that you be detained at: [Click and enter address of detention facility] and that you not leave this place of detention without written permission of the local health officer.

This order is made pursuant to California Health and Safety Code, Sections 120175 and 121365 (a), (d), or (e). This order shall be in effect for at least sixty days unless modified by the local health officer or court order and may be further extended pursuant to court order. The purpose of your detention is as follows: To separate you from others so that you do not transmit tuberculosis and to begin and or complete an appropriate prescribed course of medication for tuberculosis disease.

The assessment of the circumstances regarding your detention, including less restrictive alternatives which were attempted or considered and rejected, is as follows:
[Click and enter individualized assessment]

You have the right to request release by calling [Click and enter Name] at: (213) 744-6160. If you request release, this order cannot continue for more than five business days after the day you request release without a court order authorizing your detention. Whether or not you request release, the local health officer must obtain a court order authorizing continued detention within sixty days following the first day of your detention and thereafter must seek court review of the detention every ninety days. You have the right to arrange to be represented by counsel or to have counsel provided. If you choose to have counsel provided, the counsel will be notified that you have requested legal representation and counsel will contact you at your place of detention.

This Order is effective immediately and shall remain in effect until your treatment for tuberculosis is complete or until the local Health Officer or his designee determines that there is a reasonable likelihood that you will be able to participate in and complete an appropriate course of medication for active tuberculosis disease without detention.

This order served in person by:

Signature: _____
Title: Public Health Investigator
Date: _____

LOCAL HEALTH OFFICER,
COUNTY OF LOS ANGELES
Signature: _____
Title: [Click and enter Title]
Date: _____

Translator/Witness Signature: _____
Printed Name: _____
Date: _____

Payer Source: Unknown

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES
TUBERCULOSIS CONTROL PROGRAM

ADVISEMENT OF RIGHTS

You, [Click and enter Name], have been detained pursuant to an order of detention for tuberculosis in accordance with Health and Safety Code Sections 120175 and 121365(a),(d) and/or (e). You are hereby advised of the following rights:

You have the right to request release from detention by calling the person designated on the order of detention at the number listed on the order. If you request release, the detention order shall not continue for more than five business days after the day you request release without a court order authorizing your detention.

You have the right to arrange to be advised and represented by counsel or to have counsel provided. If you choose to have counsel provided, the counsel will be notified that you have requested legal representation.

You may supply the addresses or telephone numbers of not more than two individuals to receive notification of your detention, and the local health officer shall, at your request, provide notice within the limits of reasonable diligence to those people that you are being detained.

WAIVER OF RIGHTS

I acknowledge that I have received the above referenced Civil Order of Detention for Tuberculosis and accompanying Advisement/Waiver of Rights. At this time I choose to do the following (place initials in space provided):

_____ Request release from the order of detention for tuberculosis and I request that counsel be provided.

_____ I do not request release from the order of detention for tuberculosis at this time. I have been advised to contact the person listed on the order of detention to request release from detention at any time during the duration of the detention order.

_____ I do not request that counsel be provided at this time. I understand that I may arrange to be advised or represented by counsel or to have counsel provided at anytime during the duration of the order of detention for tuberculosis.

Patient Signature: _____ Translator/Witness: _____

Printed Name: _____

Date: _____ Date: _____

ADDRESSES OF DETENTION SITES

COUNTY FACILITIES:

High Desert Hospital, 44900 N. 60th Street West, Lancaster, CA 93536

Martin Luther King/Drew Medical Center, 12021 S. Wilmington Avenue, Los Angeles, CA 90059

Harbor/UCLA Medical Center, 1000 W. Carson Street, Torrance, CA 90509

Olive View-UCLA Medical Center, 14445 Olive View Drive, Sylmar, CA 91342

LAC+USC Medical Center, 1937 Hospital Place, Los Angeles, CA 90033

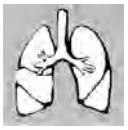
Antelope Valley Rehabilitation Center, 30500 N. Arrastre Canyon Road, Acton, CA 93510

GOVERNMENT FACILITES:

West Los Angeles Veteran's Administration Medical Center, 11031 Wilshire Boulevard, West Los Angeles, CA 90073

CDHS/CTCA Joint Guidelines

Appendix P. TB Screening Guidelines for Drug Treatment Programs in California



CDHS/CTCA JOINT GUIDELINES
Tuberculosis Screening Guidelines for Drug Treatment Programs in California

The following guidelines have been developed by the California Department of Health Services, Tuberculosis Control Branch in consultation with the Executive Committee of the California Tuberculosis Controllers Association. These guidelines are official State Recommendations and have been endorsed by the California Tuberculosis Controllers Association.

These guidelines are based on recommendations of the Centers for Disease Control and Prevention, and the California Department of Alcohol and Drug Programs Substance Abuse Prevention and Treatment Block Grant Guidelines. Alcohol and drug treatment programs should also consult with their licensing agency and their local health department TB Control Program for the TB control regulations and policies for their specific program.

Initial Screening

I. Perform an assessment for risk factors for human immunodeficiency virus (HIV) infection

   A. If HIV risk factors are present, recommend HIV counseling and testing unless the person is HIV positive or has had a negative HIV test within the last 6 months.

   B. HIV risk factors include any of the following:

      1. Injection drug use

      2. Treatment for sexually transmitted disease

      3. Multiple sex partners

      4. Male having sex with a male

      5. Exchange of sex for drugs or money

      6. Unprotected sex with someone with or at risk for HIV infection

II. Persons <u>without</u> HIV infection

   A. This category includes:

      1. Persons without HIV risk factors

      2. Persons with HIV risk factors who have had a negative HIV test in the last 6 months

B. Requirements for admission to drug treatment programs

1. TB symptom screen and TB history prior to admission (see **TB Symptoms and TB History**)

2. Mantoux tuberculin skin test (TST) recorded in millimeters of induration (not more than 3 months prior to or 7 days after admission)

3. Persons with a positive TST reaction of 10 mm or greater at this time should receive a chest x-ray and a medical evaluation for TB treatment or preventive therapy and provide medical clearance within 45 days after admission. The TST should not be performed if there is a reliable history of a prior positive TST reaction. If the history is not reliable, the TST should be performed.

4. Persons with a history of positive TST

   A. Written documentation of millimeters of induration should be sought for persons with a history of a positive TST.

   B. Such persons should not receive skin testing at admission or subsequently.

   C. Unless there is documentation of the person completing at least 6 months of preventive therapy, such persons should provide a physician's medical clearance within 45 days of admission, including a medical evaluation and chest x-ray. A chest x-ray within the prior 6 months is acceptable.

III. Persons with or at risk for HIV infection

A. This category includes:

1. Persons who have had a positive HIV test or AIDS diagnosis

2. Persons with HIV risk factors who have not had an HIV test in the last 6 months

B. Requirements for admission to drug treatment programs

1. TB symptom screen and TB history prior to admission (see **TB Symptoms and TB History**)

2. Mantoux tuberculin skin test (TST) recorded in millimeters of induration (not more than 3 months prior to or 7 days after admission)

3. Chest x-ray, regardless of TST result, within 1 month prior to or 7 days after admission

4. Persons with a positive TST reaction of 5 mm or greater at this time should be referred for evaluation for TB treatment or for preventive therapy within 14 days of admission

5. Persons with a history of positive TST

   A. Written documentation of millimeters of induration should be sought for persons with a history of positive TST.

   B. Such persons should not receive skin testing at admission or subsequently.

   C. Unless there is documentation of the person completing at least 12 months of preventive therapy, such persons should provide a physician's medical clearance within 14 days of admission, including medical evaluation and chest x-ray. A chest x-ray within the past 1 month is acceptable.

Follow-Up Screening

I. Routine follow-up screening should be done annually unless the local TB Control Program recommends it be more frequent.

II. All persons should receive a TB symptom screen (see **TB Symptoms and TB History**).

III. Persons with a prior negative TST should receive a Mantoux TST.

TB Symptoms and TB History

I. TB Symptoms

   A. Symptoms can be a cough lasting more than 3 weeks, with one or more of the following:

      1. Recent unintentional weight loss of 5 pounds or more

      2. Fever of more than 100E F

      3. Night sweats

      4. Recent fatigue

   B. At all times, regardless of any skin test result, any client, staff, or volunteer with TB symptoms or abnormal chest x-ray consistent with TB should be referred immediately for medical evaluation to rule out communicable TB.

      1. Until written physician's clearance is obtained, temporarily bar from participation any person with symptoms of TB or abnormal chest x-ray consistent with TB.

      2. For such clearance, physicians should follow CDHS/CTCA "Guidelines for Placement or Return of Tuberculosis Patients into High Risk Housing, Work, Correctional, or In-Patient Settings," (4/97).

II. TB History

A. Persons should be asked about history of TB exposure, treatment, or diagnosis.

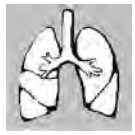
B. If the person has been diagnosed with or treated for TB disease in the past two years, bar from admission until verbal clearance is obtained from an authorized representative of the local TB Control Program, followed by written clearance within 7 days.

NOTE: No set of guidelines can cover all individual screening situations which can and will arise. Thus, when questions on individual situations not covered by these guidelines do arise, consult with the Local TB Control Program or the California Department of Health Services, TB Control Branch, for further information.

Suggested Readings:

1. Centers for Disease Control and Prevention. Essential Components of a Tuberculosis Prevention and Control Program - Screening for TB and TB Infection in High-Risk Populations. MMWR 1995; 44 (No. RR-11).
2. Centers for Disease Control and Prevention. What Drug Treatment Centers Can Do to Prevent TB.
3. Center for Substance Abuse Treatment. The Tuberculosis Epidemic: Legal and Ethical Issues for Alcohol and Other Drug Abuse Treatment Providers. TIP Series 18; 1995.

Appendix Q. Guidelines for the Placement or Return of Tuberculosis Patients Into High-Risk Housing, Work, Correctional, or In-Patient Settings



CDHS/CTCA JOINT GUIDELINES

Guidelines for the Placement or Return of Tuberculosis Patients into High Risk Housing, Work, Correctional, or In-Patient Settings

The following guidelines have been developed by the California Department of Health Services, Tuberculosis Control Branch in consultation with the Executive Committee of the California Tuberculosis Controllers Association. These guidelines are official State Recommendations and have been endorsed by the California Tuberculosis Controllers Association.

Tuberculosis (TB) transmission has been documented in a variety of high risk settings, including health care facilities, correctional institutions, congregate living sites for HIV-infected persons, residential drug treatment facilities, homeless shelters, "crack houses," and migrant farm worker camps. Transmission can occur when infectious TB patients are housed or work in such settings.

These guidelines have been developed to reduce the risk of TB transmission by:

- Delineating uniform standards for placement and return of TB patients into California high risk settings; and
- Defining criteria for patient non-infectiousness which must be met to place patients in settings in which the risk of transmission and secondary TB cases is high.

Definition of High Risk Settings

I. A housing or work setting in which others will share air with the TB patient and which is characterized by one or both of the following factors:

   A. A large number or high density of persons.

   B. The presence of persons at high risk of progression to active TB disease (see **General Considerations for Placement/Return of TB Patients Living or Working in High Risk Settings**, II, B)

II. Certain unstable or transient group living situations which may be characterized by the factors above, but in which it is not possible to identify or evaluate all potentially exposed persons, should be considered high risk until the evaluation is complete.

Placement/Return Procedures for TB Patients Living or Working in High Risk Settings

I. For cases involving patient transfers within the same local health jurisdiction in which the patient currently resides:
   The TB Controller of that jurisdiction should be consulted prior to transfer.

II. For cases involving patient transfers between local health jurisdictions:
   The TB Controllers from both jurisdictions should be involved in determining the appropriateness of placement/return. For additional information, see CDHS/CTCA "Interjurisdictional Continuity of Care Policy Statement," (4/97).

III. For transfers and discharges from hospitals and other health care facilities:

The patient may not be released without the approval of a written discharge plan by the Health Officer of the local health jurisdiction in which the facility is located.

IV. For releases from correctional institutions:
A written discharge plan must be submitted to the local health officer prior to release.

For additional information, see Health and Safety Code, Sections 121361 and 121362; and CDHS/CTCA "Guidelines for Oversight of Tuberculosis Care Provided Outside the Local Health Department Tuberculosis Program," (4/97). Contact your local TB Controller for consultation.

Note: Health care providers must report patients with known or suspected active TB to the local health department within one (1) working day of identification (California Code of Regulations, Title 17, Section 2500).

General Considerations for Placement/Return of TB Patients Living or Working in High Risk Settings

I. The patient's infectiousness

Infectiousness correlates with the following factors:

A. Disease in the lungs, airways or larynx

B. Presence of cough

C. Presence of acid-fast bacilli (AFB) in the sputum

D. Extent of infiltration on chest radiograph

E. Cavitation on chest radiograph

F. Failure of the patient to cover the mouth and nose when coughing

G. Inappropriate or short duration chemotherapy

H. Non-adherence to chemotherapy

I. Poor clinical or bacteriologic response to therapy

II. The probability that exposed persons, if infected, will develop active disease

A. Co-infection with Human Immunodeficiency Virus (HIV) is the strongest risk factor for progression to active disease among persons infected with *M. tuberculosis*. Injection drug users, who have not been tested for HIV infection, should be considered infected with HIV.

B. Factors which increase the risk of progression to disease include:

1. Co-infection with HIV

2. Substance abuse (especially injection drug use)
3. Diabetes mellitus (especially insulin dependent)

4. Prolonged corticosteroid therapy

5. Other immunosuppressive therapy

6. Cancer of the head and neck

7. Hematological and reticuloendothelial diseases

8. Intestinal bypass or gastrectomy

9. Low body weight (≥ 10% below ideal body weight)

10. Chronic malabsorption

11. Malnutrition and clinical situations associated with rapid weight loss

12. End-stage renal disease

13. Silicosis

14. Less than 4 years of age

III. The potential for transmission of *M. tuberculosis* in the environment

A. Environmental factors which increase the risk of transmission include:

1. Potential that others will share air with the case (either in the same room or via the building ventilation system)

2. Poor supply of fresh air (either through open windows or building ventilation)

3. Larger number and higher density of persons in setting

B. Transmission of *M. tuberculosis* has been documented in a variety of settings. At a minimum, the following types of settings, should be considered high risk:

1. Health care

2. Correctional

3. Drug treatment

4. Other congregate living sites, especially those housing persons with risk factors listed in II (B) above, including shelters for homeless persons, board and care facilities, and residential treatment facilities.

5. Public living accommodations, including single room occupancy hotels, if air is shared in

common areas or through the building ventilation system.

C. All settings should be considered high risk unless and until an assessment of the environment and the occupant population has been completed.

IV. Drug resistance of the patient's TB organisms

While drug susceptibility patterns of the patient may not be known at the time of placement, risk factors for resistance include:

A. Prior tuberculosis treatment;

B. Birth outside the United States; or

C. Contact (e.g. in a household or institutional outbreak) with an infectious case known to be drug resistant.

Prerequisites for Placement/Return of TB Patients Living or Working in High Risk Settings

I. Patients known or suspected to have TB in an infectious stage should not be placed in or returned to high risk settings, such as those described in **General Considerations for Placement/Return of TB Patients Living or Working in High Risk Settings**, III (A and B) above. This restriction also applies when these patients are transferred within a hospital or correctional facility to an area of that institution which meets the definition of a high risk setting.

II. Patients known or suspected to have TB must be non-infectious according to the following criteria in order to be placed in or returned to high risk settings:

A. Patients with previously positive sputum smears must meet all the following criteria:

1. Have three (3) consecutive negative AFB sputum smear* results from sputum collected on different days; **AND**

2. Have completed at least two (2) weeks of multi-drug anti-tuberculosis therapy that is consistent with CDHS/CTCA "Guidelines for the Treatment of Tuberculosis and Tuberculosis Infection for California," (4/97); **AND**

3. Exhibit clinical improvement (e.g. reduction in fever and cough); **AND**

4. Have continued close medical supervision, including directly observed therapy (DOT), if needed; **AND**

5. Continues multi-drug therapy, even if another pulmonary process is diagnosed, pending negative culture results from at least three (3) sputum specimens.

* Obtained from concentrated sputum specimens, per Public Health Mycobacteriology: A Guide for Level III Laboratories. Centers for Disease Control and Prevention, 1985.

B. Patients with only negative sputum smears must meet all the following criteria:

1. Have three (3) consecutive negative AFB sputum smear* results from sputum collected on different days; **AND**

2. Have completed a minimum of four (4) days of multi-drug anti-tuberculosis therapy that is consistent with CDHS/CTCA "Guidelines for the Treatment of Tuberculosis and Tuberculosis Infection for California," (4/97); **AND**

3. Have continued close medical supervision, including directly observed therapy (DOT), if needed; **AND**

4. Continues multi-drug therapy, even if another pulmonary process is diagnosed, pending negative culture results from at least three (3) sputum specimens.

Special Circumstances

For patients described in **Prerequisites for Placement/Return of TB Patients Living or Working in High Risk Settings**, II (A or B) above, more stringent criteria, including longer treatment prior to transfer, should be considered in certain special circumstances. Examples include patient transfer to units housing HIV-infected inmates in correctional facilities, or the placement in any high risk setting of patients known or suspected to have drug resistant TB. Contact your local TB Controller for consultation.

NOTE: No set of guidelines can cover all individual placement situations which can and will arise. More or less stringent criteria may be required in other living or work settings. Thus, when questions on individual situations not covered by these guidelines do arise, consult with the Local TB Control Program or the California Department of Health Services, TB Control Branch, for consultation and further information.

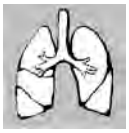
Suggested Readings:

1. Centers for Disease Control and Prevention. Guidelines for Preventing the Transmission of *Mycobacterium tuberculosis* in Health-Care Settings, 1994. MMWR 1994; 43 (No. RR-13).
2. Centers for Disease Control and Prevention. Prevention and Control of Tuberculosis in Correctional Facilities: Recommendations of the Advisory Committee for the Elimination of Tuberculosis. MMWR 1996; 45 (No. RR-8).
3. American Thoracic Society. Control of Tuberculosis in the United States. Am Rev Respir Dis 1992; 146: 1623 - 1633.
4. American Thoracic Society. Treatment of Tuberculosis and Tuberculosis Infection in Adults and Children. Am J Respir Critical Med 149: 1359-1374, 1994.
5. CDHS/CTCA. Interjurisdictional Continuity of Care Policy Statement. 4/97.
6. CDHS/CTCA. Guidelines for the Treatment of Tuberculosis and Tuberculosis Infection for California. 4/97.

* Obtained from concentrated sputum specimens, per Public Health Mycobacteriology: A Guide for Level III Laboratories. Centers for Disease Control and Prevention, 1985.

Appendix R. Inter-Jurisdictional Continuity of Care Policy Statement

CDHS/CTCA JOINT GUIDELINES
Interjurisdictional Continuity of Care Policy Statement



The following guidelines have been developed by the California Department of Health Services, Tuberculosis Control Branch in consultation with the Executive Committee of the California Tuberculosis Controllers Association. These guidelines are official State Recommendations and have been endorsed by the California Tuberculosis Controllers Association.

As TB Controllers, our goal is to ensure the continuity of care of all patients with known or suspected TB. We are committed to following each patient to completion of therapy and to providing needed information to other TB Controllers or providers when a patient, who has not completed the recommended course of therapy, moves/transfers to another jurisdiction.

To meet this goal, we commit to the following:

Correctional Inmates

I. Upon notification by a correctional facility in the local jurisdiction, the sending TB Controller will notify the TB Controller of the jurisdiction that will be receiving the patient, when any correctional facility, including juvenile facilities, inthe sending jurisdiction transfers or paroles/releases an inmate with known or suspected TB to another jurisdiction. The receiving TB Controller will notify the Chief Medical Officer of the receiving facility.

II. The CTCA form, "Correctional Facility Tuberculosis Patient Plan," can be used for the notification of correctional inmates.

Laboratory

The local TB Controller will forward, as soon as possible, to the appropriate TB Controller, any mycobacteriologylaboratory reports received where patient address indicates residence in another jurisdiction. Positive AFB smears on sputum results will bereported immediately by phone and fax.

Health Care Facilities (see attached **Health Care Facilities Algorithm)**

I. Sending Health Department (jurisdiction where patient is hospitalized)

A. When a TB Control Program receives notification that a TB suspect or case is hospitalized at a facility within its jurisdiction, and the patient resides in another jurisdiction, the sending health department will forward the report by phone and fax to the receiving health department within one working day.

B. The care provider will submit a written discharge plan to the sending health department. To expedite interjurisdictional discharge approvals, providers should be encouraged to submit discharge plans two working days prior to the anticipated discharge date.

C. Within four working hours of receipt of the discharge plan, the sending health department will phone and fax the discharge plan to the receiving jurisdiction.

D. The sending health department will follow established CDHS/CTCA "Guidelines for the Placement or Return of Tuberculosis Patients into High-Risk Housing, Work, Correctional, or In-Patient Settings," (4/97) when evaluating a request for discharge approval.

E. The sending jurisdiction should use reasonable judgement and diligence in informing and working cooperatively with the receiving jurisdiction, providing updated information when it is received, or requested.

F. Within one working day after consultation with the receiving jurisdiction, the sending department will notify the provider and the receiving jurisdiction of discharge approval, or the need for additional information/action that is required prior to discharge approval.

G. In the event a discharge approval is requested on a holiday, weekend, or after business hours, the sending jurisdiction will attempt to contact the TB duty officer (if one is designated) for the receiving jurisdiction. The same criteria for discharge approval will be followed.

II. Receiving Jurisdiction (jurisdiction to which the patient will be discharged)

A. When the TB Control Program receives notification of a TB suspect / case, staff should begin preparing for discharge at that time by initiating an evaluation of the home and household contacts to determine if the environment is suitable for discharge.

B. The receiving jurisdiction will review the TB discharge plan within one working day of when it was received, and will contact the sending jurisdiction and/or provider to discuss the plan when necessary.

C. If it has not previously done so, the receiving jurisdiction will assess the proposed placement/home environment and report to the sending jurisdiction within two working days. The assessment will be based on CDHS/CTCA "Guidelines for the Placement or Return of Tuberculosis Patients into High Risk Housing, Work, Correctional, or In-Patient Settings," (4/97).

D. The receiving jurisdiction should use reasonable diligence in expediting the evaluation process so that the patient discharge is not unnecessarily delayed.

E. Receiving jurisdictions without a response plan for holidays, weekends or after normal hours, will receive notification on the next business day.

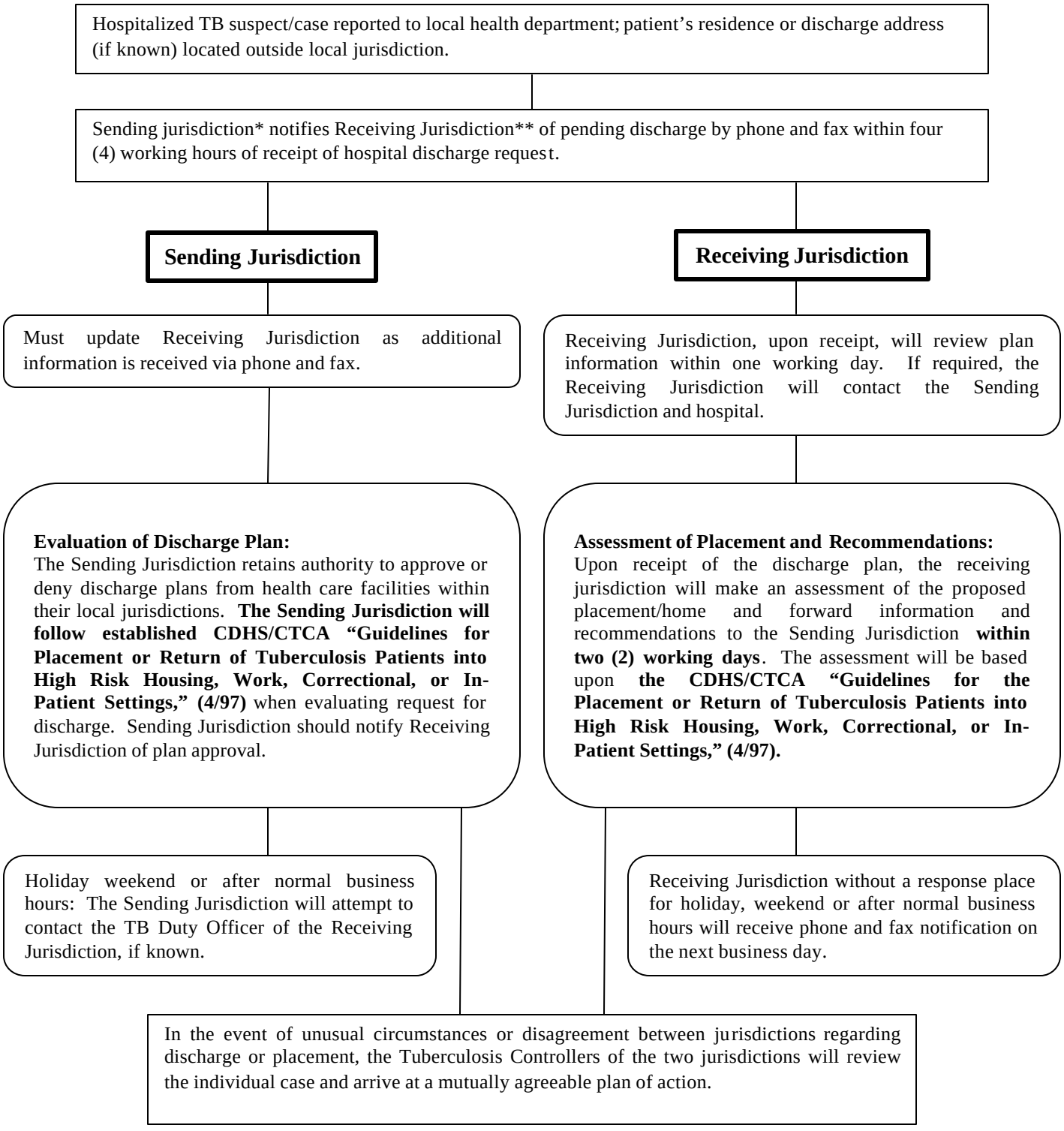
III. Special Circumstances

A. In the event there is a disagreement between the sending and receiving jurisdictions on the appropriateness of a placement, the TB Controllers, or their designees, will review the case and arrive at a mutually agreeable plan of action.

B. Unusual circumstances, such as previously unexposed high risk contacts in the home, MDR-TB, or high risk for non-adherence, may necessitate a delay in discharge approval until special arrangements can be made.

NOTE: No set of guidelines can cover all individual interjurisdictional transfer situations which can and will arise. Thus, when questions on individual situations not covered by these guidelines do arise, consult with your local health department Tuberculosis Control Program for further information.

CDHS/CTCA JOINT GUIDELINES
Interjurisdictional Continuity of Care Policy Statement
Health Care Facilities Algorithm



* Sending Jurisdiction: Jurisdiction in which health care facility with in-house TB suspect or case is located.
** Receiving Jurisdiction: Jurisdiction in which TB suspect or case plans to locate immediately following discharge from health care facility.

Los Angeles County, Department of Health Services, Public Health Nursing, Sputum and Aerosol Sputum Collection Protocols

Appendix S. Collection of Sputum

SUBJECT: COLLECTION OF SPUTUM POLICY NO. 212.1

Section 300: Nursing Procedures
Effective Date: January 1996

THEORY: Sputum is a substance raised from the lungs for testing for specific organisms.

EQUIPMENT:

A. Sputum bottles labeled with patient's name, chart number, date, Doctor's name and name of health center.
B. Tissue
C. Appropriate lab slip

PROCEDURE:

A. Instruct patient as to what constitutes significant sputum.

B. Patient instructions for sputum collection.
   1. At home
      a. Brush teeth at bedtime.
      b. Upon arising, rinse mouth with water.
      c. Collect sputum before eating or drinking.
      d. Cough and expectorate whatever comes into mouth and throat into the sputum container.
      e. Replace cap and screw on tightly.
      f. Place sputum container in metal container and screw on cap.
      g. Wash hands with soap and water.
      h. Refrigerate sputum specimen collected at home between time specimen is being collected and until ready to bring into clinic (maximum 5 days). This will prevent overgrowth of bacteria, which could interfere with testing.
   2. In clinic
      a. Place patient in contained area of negative airflow.
      b. Cough and expectorate whatever comes into mouth into the sputum container.
      c. Replace cap and screw on tightly.
      d. Place sputum container in metal container and screw on cap.
      e. Wash hands with soap and water.

C. Keep specimen refrigerated until sent to lab. Place sputum specimen in sealed plastic bag.

Appendix T. Collection of Aerosol Sputum

SUBJECT: COLLECTION OF AEROSOL SPUTUM POLICY NO. 310

Section 300: Nursing Procedures
Effective Date: January 1996

THEORY: The purpose is to assist patients who cannot raise sputum otherwise. This procedure will be ordered by the clinician in writing on the patient's chart. Precautions should be taken with asthmatics, persons who appear very short of breath, persons who have had recent blood streaking or recent hemoptysis, very elderly patients, mentally retarded or confused patients and those not able to understand specimen collection instructions.

EQUIPMENT:

A. Properly ventilated room or aerosol induction safety cabinet
B. Nebulizer
C. Sputum bottle
D. Laboratory slips, Examination for Mycobacterium or Pathogenic Fungi, H-369
E. Solutions – tap water, aerosol solution
F. Disposable polyethylene tubing
G. Gauze sponges
H. Isolette
I. Plastic elbow connectors, if necessary
J. Hepa filter
K. Disposable nebulizer cups
L. Tissues
M. Paper towels
N. Infectious waste container
O. Emesis basin

PROCEDURE:

A. Setting up the ultrasonic nebulizer
   1. Make sure the drain tube is inserted securely into the drain tub clips.
   2. Pour tape water into the couplant compartment until it reaches the fill line indicator.
   3. Place the 2 couplant compartment covers around the nebulizer chamber.
   4. Place the disposable cup with the aerosol solution into the chamber holder.
   5. Attach the necessary disposable tubing to the nebulizer following the manual of instructions for the machine.

6. Plug the machine in.
7. Place paper towels in front of the patient.
8. Turn on the nebulizer.

B. Collection of aerosol sputum
   1. Ask the patient if he has used the machine before.
   2. Screen the patient for the precautions stated in the Theory section of this procedure.
   3. Seat the patient facing the nebulizer or the open safety hood.
   4. Explain the procedure to the patient:
      a. Instruct the patient to hold the end of the tubing approximately two inches from mouth; inhale vapor slowly and deeply. Coughing should begin within a few minutes; if not, the patient's method of inhalation should be checked. If a specimen is not collected within 10 minutes, discontinue the procedure.
      b. Observe the patient at intervals and discontinue the procedure if patient experiences any unusual symptoms, i.e., nausea, dizziness.
      c. Inform the patient to move away from the mist and cover mouth with several tissues when coughing.
      d. Have patient clear throat after coughing and expectorate in the specimen bottle. When the sputum is obtained, advise the patient to screw the top on the bottle and give it to the nurse.
      e. Advise the patient to place any used tissue into the infectious waste container.
   5. Label the sputum bottle "Aerosol" and also include the patient's name, chart number, date, physician's name, chart number, date, physician's name and name of the health center. Submit the necessary number of appropriately completed laboratory slips for concentrate and/or culture.

6. Turn off the nebulizer between patients. If using a safety hood, keep the filter fan and ultraviolet light on for at least 10 minutes. If using and aerosol room, keep the ultraviolet light and fan on for a least 10 minutes.
7. After each patient
   a. Dispose of the polyethylene tubing, disposable nebulizer cup with solution, gauze sponges and towels, in the infectious waste container.
   b. Wipe the inside metal panels of the cabinets and shelf with germicidal solution.
   c. If applicable, remove the plastic elbow connectors, wash and soak for 10 minutes in germicidal solution.
   d. Wash hands.
   e. Replace gauze sponges, paper towels disposable tubing, disposable nebulizer cup with solution and plastic elbow connectors, if applicable.

C. Post-Clinic Procedure
1. Turn switches off and disconnect all plugs.
2. Discard fiberglass filter and all used disposable supplies.
3. Clean the unit with germicidal solution.
4. Set unit up for next use.

NOTE: See Infection Control Procedure or Manufacturer's Insert for cleaning the nebulizer.