

# *Self-Study Modules on Tuberculosis*

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## **Tuberculosis Surveillance and Case Management in Hospitals and Institutions**

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control and Prevention**

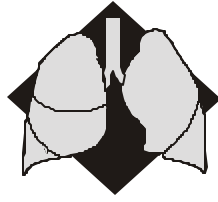
**National Center for HIV, STD, and TB Prevention  
Division of Tuberculosis Elimination**

**Public Health Practice Program Office  
Division of Media and Training Services**



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# **Tuberculosis Surveillance and Case Management in Hospitals and Institutions**

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## BACKGROUND

*In this module, you will learn about the role of public health workers (e.g., public health advisors, DOT outreach workers) in conducting tuberculosis (TB) surveillance and case management in hospitals or institutional settings. This module will familiarize you with a systematic process for managing TB patients in these settings. The process begins with the identification of suspected or confirmed TB cases by routine case reporting and by active case finding through periodic visits to laboratories and pharmacies. Active case finding and routine case reporting are followed by the collection of patient information from medical records and other sources. This information prepares the public health worker for an initial interview that is used to establish the basis for a good relationship with the patient, to begin a contact investigation, and to assess the patient's individual needs. Finally, you will learn about planning for a patient's follow-up care while in the facility and after discharge.*

*Keep in mind that the duties of public health workers vary from situation to situation. Often, a public health worker is assigned to a hospital or institution to assist in surveillance activities and case management duties. The resources of many TB programs may not be adequate to support the broad range of activities recommended in this module; however, it may be appropriate in some areas to target specific hospitals or institutions or specific public health functions, according to local needs. This module is therefore intended to present an overview of public health duties related to TB control in hospital and institutional settings; it does not advocate specific duties and functions for individuals.*

## OBJECTIVES

After working through this module, you will be able to:

1. Explain the primary goals of TB prevention and control.
2. Describe the process of conducting TB surveillance and case management in hospitals and institutions.
3. Explain the importance of good communication with patients and with hospital or institutional staff.



4. Describe specific considerations for conducting TB surveillance and case management in correctional facilities.
5. List the hospital or institutional staff with whom the public health workers may collaborate.
6. Describe how public health workers support hospital or institutional staff in the care of patients with TB.
7. Discuss the case definition and criteria for the classification of suspected and confirmed TB cases.
8. Explain the two basic methods for identifying suspected or confirmed TB cases and how they are put into practice.
9. Explain how to use information found in laboratories and pharmacies for surveillance
10. Explain how to locate the patient and identify available information sources.
11. Discuss the importance of the initial patient interview.
12. Explain how to assess the patient's potential for adherence.
13. Describe the seven main sections of the patient's medical record.
14. Describe the responsibility of the TB program to every suspected or confirmed TB case.
15. Describe the purpose of planning for discharge from the facility.
16. Describe how information is gathered about patients who are discharged, leave the facility, or die.
17. Describe procedures that should be used in the interjurisdictional referral of patient information.



## NEW TERMS

Lists of new terms were introduced in each of the five core *Self-Study Modules on Tuberculosis* (Modules 1-5). Please refer to the core modules or their Glossary if you encounter unfamiliar terms related to TB that are not defined in this New Terms section.

Look for the following new terms in this module.

**action plan** – a plan to determine what information is missing or pending, where and when to collect this information, and who will need the information

**active case finding** – identifying unreported cases of TB disease by actively searching for them through, for example, laboratory and pharmacy audits

**adherence plan** – a written plan that is based on the patient’s understanding and acceptance of the TB diagnosis, that addresses barriers to adherence, and that details the method chosen to deliver treatment and monitor adherence for that specific patient

**admission note** – patient information recorded at the time of admission to a hospital, usually including the admission diagnosis and initial plan for diagnostic work-up; usually included in the progress notes

**AFB logbook** – a logbook kept in the mycobacteriology laboratory that contains the results of acid-fast bacilli (AFB) smear examinations; it may be called a smear mycobacteriology log

**case management** – a system in which a specific health department employee is assigned primary responsibility for the patient, systematic regular review of patient progress is conducted, and plans are made to address any barriers to adherence

**discharge planning** – the preparation of a detailed plan for comprehensive care of a hospitalized or institutionalized patient after that patient’s discharge

**discharge summary** – a document written by the patient’s physician upon discharge; contains a brief summary of all important information from the entire hospitalization or stay in the institution, including the discharge diagnosis and often a plan for follow-up care



**emergency room/department assessment form** – patient information recorded when a patient is brought to an emergency room; may be used instead of an admission note and is usually included in the progress notes

**first-line TB drugs** – the initial drugs used for treating TB disease. Include isoniazid (INH), rifampin (RIF), pyrazinamide (PZA), and either ethambutol (EMB) or streptomycin (SM)

**history and physical exam form** – a standardized form sometimes used to record patient information at the time of the patient's first evaluation; may be used instead of an admission note and is usually included in the progress notes; it is also referred to as the H&P

**hospital epidemiologist** – a specially trained person who studies the causes of outbreaks and other health problems in a health care setting

**identification data** – includes the patient's name, address, social security number, date of birth, and other demographic information (may be a separate registration form)

**infection control practitioner** – a trained health care professional (often a nurse) who is responsible for controlling and preventing the spread of infectious diseases in a hospital or other health care setting

**institutions** – residential facilities where groups of people live, such as nursing homes, correctional facilities, or homeless shelters, as well as out-patient facilities, such as drug treatment centers or health department clinics

**laboratory results** – records presenting the results of every laboratory test that has been done on the patient, such as AFB smear examinations, cultures, and drug susceptibility tests performed in a laboratory

**latent TB infection (LTBI)** – also referred to as TB infection. Persons with latent TB infection 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 tuberculin skin test

**medical records department** – a department in a hospital or other health care facility that houses the records of patients who have been admitted to the hospital and subsequently have been discharged, transferred to ambulatory care services, left against medical advice, or died

**medication record** – an information sheet on which the nurses record the date, time, and amount of prescribed medications given to the patient during hospitalization or care in a facility; may not be included in patient's medical record (for example, may be kept in a separate medication logbook)



**nurses' notes** – a record in which the nurses who directly care for the patient continuously record information, including the patient's symptoms, medications given, and scheduled procedures or activities and may be included in the progress notes section

**out-patient clinic** – a clinic that cares for non-hospitalized patients with a particular type of problem (for example, chest, infectious disease, AIDS, pediatric)

**pathology laboratory** – a laboratory that performs tests and examinations on tissue and biopsy specimens

**physician's orders** – a record in which the physician(s) prescribes medications, orders laboratory tests or procedures (for example, bronchoscopy or gastric aspiration), and delivers other patient-care instructions to staff. Medication orders specify date, name of medication, dosage, and duration of treatment (in days or in number of doses)

**progress notes** – a record in which all physicians and other specialists continuously record patient information during a patient's hospital stay and may include nurses' notes and notes from other ancillary staff

**public health worker** – an employee of the health department (often a public health advisor, DOT outreach worker, or a nurse) whose duties may include either surveillance, case management, or some combination of these activities

**radiology reports** - reports summarizing all radiology procedures performed on the patient (for example, chest radiographs or CT scans); part of the medical record

**routine case reporting** – the required reporting of suspected or confirmed TB cases to a public health authority

**second-line TB drugs** – drugs used to treat TB that is resistant to first-line TB drugs (for example, capreomycin, kanamycin, ethionamide, cycloserine, ciprofloxacin, amikacin)

**SOAP notes** – Progress notes can also be referred to as SOAP notes: subjective progress, objective progress, assessment, and plans

**surveillance** – the ongoing systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know in public health programs

**treatment plan** – a written plan detailing the medical regimen as ordered by the physician, including periodic monitoring for adverse reactions and other follow-up care





# READING MATERIAL

## Introduction

.....  
 The three primary goals of TB prevention and control are to identify and treat TB disease, to identify and evaluate exposed contacts, and to test populations at high risk for TB, providing treatment for latent TB infection as indicated.  
 .....

### Goals of TB Prevention and Control

The three primary goals of TB prevention and control are to

- # Identify and treat persons who have active TB disease
- # Identify and evaluate exposed contacts, offering appropriate treatment as indicated
- # Test populations at high risk for TB infection and disease to detect infected persons, and provide treatment for latent TB infection (LTBI) to prevent progression to active TB

To accomplish these goals, **public health workers** (employee of the health department, often a public health advisor, outreach worker, or a nurse) may be assigned to make routine visits to hospitals or other **institutions** to gather information, interview TB patients, and plan for patients' follow-up care. Institutions include residential facilities where groups of people live, such as nursing homes, correctional facilities, or homeless shelters. They can also include out-patient facilities such as drug treatment centers or health department clinics. To be successful, the public health worker should know what information is needed, where it is located, how to locate and interview patients, and how to collaborate productively with hospital or institutional staff.



Four steps are included in the basic process for conducting TB surveillance and providing case management in hospitals or institutions: identifying cases, gathering information, interviewing TB patients, and planning for patients' follow-up later.

### Process

**Surveillance** is the ongoing systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know in public health programs. **Case management** is a system in which a specific health department employee is assigned primary responsibility for the patient, systematic regular review of patient progress is conducted, and plans are made to address any barriers to adherence. Four steps included in the basic process for conducting TB surveillance and case management in hospitals or institutions are

1. **Identify suspected or confirmed TB cases** as soon as possible and report them to the TB control program
2. **Collect information from the patient's medical record** and other sources
3. **Conduct an initial interview** with every patient who has suspected or confirmed TB
4. **Plan for each TB patient's follow-up care** upon discharge from the hospital or institution

These steps are summarized in Figure 8.1, which will appear throughout this module as each step in the surveillance and case management process is highlighted and further defined.

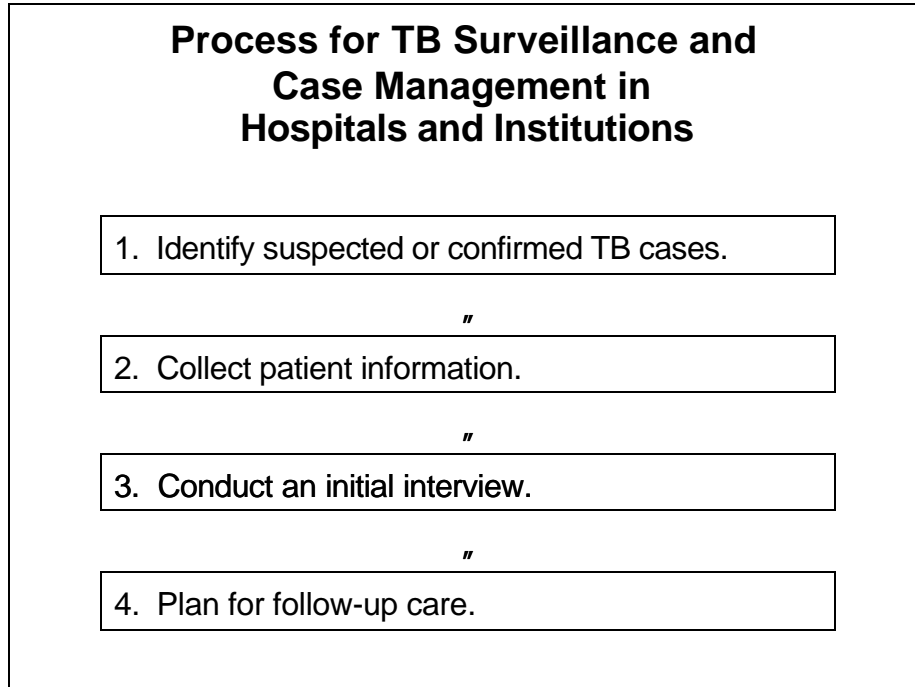


Figure 8.1 Process for TB surveillance and case management.

.....  
 Public health workers need skills in communication and collaboration to conduct TB surveillance and case management.  
 .....

Public health workers need skills in communication and collaboration to conduct TB surveillance and case management. Conducting TB surveillance and providing case management in hospitals or institutions requires that public health workers have good interpersonal skills because of the number of persons involved and the complexity of situations that can arise. The two basic skills that are needed to successfully carry out the steps in this process are

- # Communication
- # Collaboration



.....  
A lapse in communication  
can have serious  
consequences.  
.....

.....  
Poor communication can  
cause a patient to receive  
incomplete or inadequate  
treatment and therefore  
remain ill or infectious.  
.....

### Communication

Because providing complete treatment to TB patients requires long-term follow-up, communication is essential both with the patients and with the health care workers who care for them. **A lapse in communication can have serious consequences.** For example, poor communication can cause a patient to receive incomplete or inadequate treatment and therefore remain ill or infectious. Incomplete treatment is a serious failure for TB prevention and control because

- # Additional persons may be exposed to TB
- # Patients may be rehospitalized with serious complications of TB
- # Patients may develop multidrug-resistant TB

Effective communication, good surveillance procedures, and efficient case management can help prevent such serious consequences.

### Collaboration

Key hospital or institutional staff with whom a public health worker may collaborate closely to conduct TB surveillance and case management include

- # Infection control practitioners
- # Laboratory staff, including technicians (specifically those who work in mycobacteriology)
- # Pharmacy staff
- # Radiology department staff
- # Hospital epidemiologists or employee health services staff
- # Discharge planners or case managers
- # Medical records staff



.....  
The infection control practitioner is a trained health care professional (often a nurse) who is responsible for controlling and preventing the spread of infectious diseases in a hospital or other health care setting.  
.....

.....  
The hospital epidemiologist is specially trained to study the causes of outbreaks and other health problems in a health care setting.  
.....

.....  
A good collaborative relationship takes time and commitment to develop.  
.....

The **infection control practitioner** is a trained health care professional (often a nurse) who is responsible for controlling and preventing the spread of infectious diseases in a hospital or other health care setting; the **hospital epidemiologist** is a specially trained person who studies the causes of outbreaks and other health problems in a health care setting. These and other important staff are included in Table 8.1, which indicates examples of how such persons can help public health workers conduct TB surveillance and case management.

The key staff who collaborate with TB public health workers vary from hospital to hospital and from institution to institution. Generally, one person has the lead responsibility for TB surveillance; it is important to identify and collaborate closely with this person for surveillance activities. A good collaborative relationship can be built on

- # Mutual understanding of each person’s role and responsibilities
- # Respect for the specific demands and limitations of each person’s job (for example, schedule constraints, limits of authority, procedures to protect confidentiality)
- # Good communication with adequate notice in advance of specific needs or problems, complete explanations of procedures or medical information as required, and openness about potential sources of disagreement
- # Prompt negotiation of problems or conflicts, using a neutral third party if necessary

A good collaborative relationship takes time and commitment to develop; however, it is well worth the effort.



**Table 8.1**  
**Examples of How Key Staff Can Help with TB Surveillance and Case Management**

<b>Key Staff</b>	<b>Help Available*</b>
Infection control practitioners	Reporting of TB cases;† information on infectiousness and isolation procedures
Laboratory staff	Mycobacteriology results, including smear and culture results†
Pharmacy staff	Prescription orders and purchase records†
Radiology department staff	X-ray reports and copies of current or baseline films for receiving health care provider
Hospital epidemiologists or employee health services staff	Patient contacts within the hospital or other health care facility; outbreak information
Discharge planners or case managers	Patient locating information and plans for follow-up health care
Medical records staff	Patient records from prior hospitalizations or stays in a health care facility
Hospital ward or institution-based clerks	Patient locating information and current status of medical records
Infectious disease and AIDS case workers	Information about ongoing care and health problems affecting TB treatment
Physicians and nurses	Reporting of TB cases;† clarification of a patient's current regimen and TB diagnosis
Social workers	Information on housing, financial, or social problems that may affect treatment outcome
Emergency room (ER) staff	Information on patient admissions through the ER
Parole workers (if any)	Patient locating information and potential treatment problems

\* Depends on the organization of the hospital or institution

† In some jurisdictions, laboratory or pharmacy staff may also report cases with positive mycobacteriology tests or patients taking two or more TB drugs



.....  
A first step in establishing a good working relationship in a hospital or institution is for a public health worker to explain his or her role as a liaison between the facility and the TB program.  
.....

A first step in establishing a good working relationship in a hospital or institution is for a public health worker to introduce himself or herself to key staff and explain his or her role as a liaison between the facility and the TB program. It may be helpful for the public health worker to show the staff an official letter of introduction from the TB program stating the purpose of his or her assignment and the legal authority of the TB program.

As liaisons with the TB program, public health workers support hospital or institutional staff by

- # Providing important information on a patient’s TB history
- # Providing information on services available through the TB program
- # Supplying educational materials for patients and hospital or institutional staff
- # Helping to plan for follow-up care for TB patients upon discharge

.....  
Active case finding is identifying unreported cases of disease by actively searching for them  
.....

In addition, public health workers assigned to hospitals and institutions support the TB program by

- # Conducting **active case finding** (identifying unreported cases of disease by actively searching for them)
- # Assisting with contact investigations
- # Monitoring the progress of TB patients in the facility



**Study Questions 8.1-8.2**

**8.1. What are the three primary goals of TB prevention and control?**

**8.2. What are the four basic steps in the process for conducting TB surveillance and providing case management in hospitals and institutions?**

Answers on page 101.





Study Questions 8.3-8.5

8.3. What are the serious consequences of a lapse in communication between patients and public health workers?

8.4. Below is a list of several hospital or institution staff with whom public health workers collaborate to conduct TB surveillance and case management. Match the key staff with the type of help they provide for conducting TB surveillance and case management.

<u>Key Staff</u>	<u>Help Available</u>
A. Infection control practitioner	___ Mycobacteriology results, including smear and culture results
B. Laboratory staff	___ Reporting of TB cases; infectiousness and isolation procedures
C. Pharmacy staff	___ Patient contacts; outbreak information
D. Radiology staff	___ Prescriptions; purchase records
E. Hospital epidemiologists or employee health service staff	___ X-rays; current or baseline films
F. Discharge planners	___ Patient records from prior hospitalizations or other health care facility
G. Medical records staff	___ Patient locating information; plans for follow-up health care

8.5. List four ways that public health workers support hospital or institutional personnel.

Answers on pages 101-103.



## TB in Correctional Facilities

### Overview

This module addresses TB surveillance and case management in hospitals and institutions in general. However, because of the unique challenges posed by controlling TB in correctional facilities, a brief overview of the health department's and correctional facilities' role in TB surveillance and case management follows.

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All correctional facilities should have a written TB infection control plan and should designate a person or group of persons who will be responsible for the TB infection control program in the facility.

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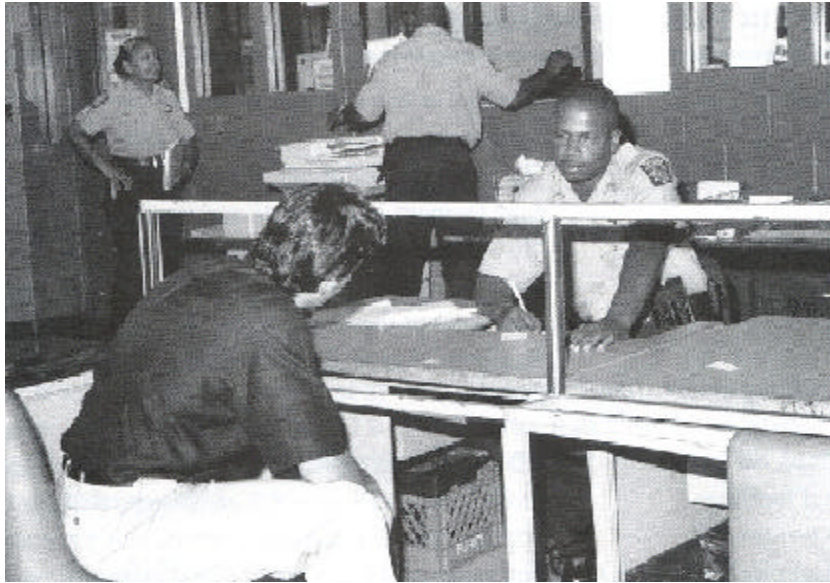
.....  
State and local health departments should form close relationships with correctional facility officials.

.....

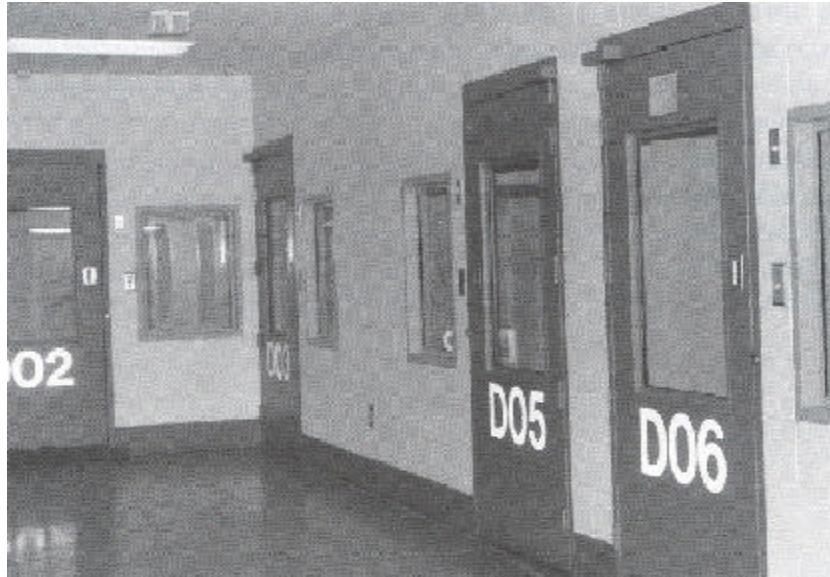
TB poses a particular challenge today in correctional environments (Figure 8.2 and Figure 8.3), as inmate populations increase and overcrowding makes outbreaks of TB a serious threat. Control of TB is an essential element in correctional health care.

All correctional facilities—even facilities in which few cases of TB are expected—should have a written TB infection control plan and should designate a person or group of persons who will be responsible for the TB infection control program in the facility.

State and local health departments should form close working relationships with correctional facility officials. Health departments can assist correctional facilities in formulating, implementing, and evaluating essential TB control activities.



*Figure 8.2 Correctional facility intake.*



*Figure 8.3 Correctional facility.*



Health departments should assist correctional facilities in developing and updating policies, procedures, and record systems for TB control.

A specific health department contact person should be designated to provide epidemiologic and management assistance to correctional facilities.

### Role of the Health Department

Health departments should assist correctional facilities in developing and updating policies, procedures, and record systems for TB control. The health department should also provide access to expert TB medical consultation and ensure that correctional facilities have access to adequate laboratory services. A specific health department contact person should be designated to provide epidemiologic and management assistance to correctional facilities. This responsibility may initially require considerable onsite consultation at the correctional facility. Small jails may need more direct support from the health department. For instance, it may be possible for health department staff to perform screening activities or administer directly observed therapy (DOT).

Health department staff should help develop programs to train correctional facility staff to

- # Create TB control policies and procedures
- # Perform, read, and record tuberculin skin tests (Figure 8.4)
- # Identify signs and symptoms of TB disease
- # Initiate and observe therapy
- # Monitor medication side effects
- # Collect diagnostic specimens
- # Educate inmates
- # Maintain record systems
- # Provide tracking and patient record system
- # Ensure released inmates complete therapy



*Figure 8.4 Correctional facility nurse administering tuberculin skin test at intake.*

.....  
Health departments should cooperate with correctional staff in identifying TB among persons who enter the facility and arranging continued treatment for inmates released while receiving TB treatment or treatment for LTBI.  
.....

Health departments should also provide consultation for contact investigations for each case within correctional facilities and ensure appropriate examinations for community contacts of the persons found to have TB in these facilities. In addition, health departments should cooperate with correctional staff in identifying TB among persons who enter the facility and arranging continued treatment for inmates released while receiving TB treatment or treatment for LTBI.



.....  
 Cross-matching information from the TB registry with the names of inmates admitted into correctional facilities can help identify persons with TB disease who fail to report their TB history or locate patients who have been lost to follow-up.  
 .....

Health departments have a responsibility to maintain TB registries with updated medical information on all current TB patients in their jurisdictions, including persons in correctional facilities. Cross-matching information from the TB registry with the names of inmates admitted into correctional facilities can help identify persons with TB disease who fail to report their TB history or locate patients who have been lost. TB case records should be assessed quarterly, and necessary revisions in policies or procedures should be recommended. In addition, health departments should regularly collect information on TB cases reported in correctional facility inmates and staff, and should periodically assess the impact of TB infection and disease in correctional facilities on the community as a whole.

Because some inmates may have both TB and HIV infection, health department officials should assist correctional facilities in developing and implementing HIV prevention programs. Such programs should include strategies to identify persons practicing high-risk behaviors, to reduce high-risk behaviors among all inmates, and to provide counseling and testing services to HIV-infected persons.

**Role of the Correctional Facility**

.....  
 In all correctional facilities, officials should work closely with the state and local health departments in the jurisdiction.  
 .....

The correctional facility should be responsible for in-facility TB screening, containment, and assessment unless otherwise mandated by legal statute. In all correctional facilities, officials should work closely with the state and local health departments in the jurisdiction. Correctional facilities, including local jails, are advised to have formal written working agreements with the health department in their area.



These written agreements should delineate responsibilities and specify procedures for the following activities:

- # Evaluation and treatment of inmates
- # Surveillance to ensure that cases of TB are promptly reported, counted, and recorded
- # Follow-up of symptomatic inmates
- # Follow-up of inmates who have abnormal chest radiologies
- # Contact investigation within the facility for reported TB cases and follow-up with the health department for contact investigation of potentially exposed patients outside the facility
- # Follow-up of inmates released before completing treatment for TB disease
- # Follow-up of inmates released before completing treatment for LTBI

Correctional facilities should also collaborate with health department staff to provide education and counseling about TB to inmates and staff.

.....  
 Inmates on DOT for TB disease and LTBI who are released or transferred to other correctional facilities should be referred for follow-up treatment.  
 .....

It may be necessary for correctional facility staff to request health departments and receiving facilities to formally notify them of the arrival of referred inmates on DOT who are released or transferred into the jurisdiction. This is a very important component of a good TB control program, since persons who are lost to follow-up are at high risk of never completing therapy, developing drug-resistant TB disease, and spreading TB to others. Inmates on DOT for LTBI who are released or transferred to other correctional facilities should also be referred for follow-up treatment.



## Summary of the Role of Health Departments in TB Surveillance and Case Management in Correctional Facilities

Health department staff should

- # Designate a specific person to work with correctional facilities
- # Ensure that cases of TB are promptly reported, counted, and recorded
- # Provide information from the TB registry in the health department so that information from the TB registry can be cross-matched with names of inmates admitted into correctional facilities to identify persons with TB disease who fail to report their TB history
- # Assist correctional facilities in developing, implementing, and updating
  - Q TB control policies and procedures
  - Q Training and educational programs
  - Q Tracking and patient record systems
  - Q HIV prevention programs
- # Ensure that released inmates complete therapy
- # Assist with contact investigations in and outside correctional facilities
- # Analyze TB morbidity in correctional facilities
- # Provide or refer to expert clinical consultation
- # Ensure access to adequate laboratory services





**Study Questions 8.6-8.7**

**8.6. What are some of the roles of the health department staff in the surveillance and case management of TB patients in correctional facilities?**

**8.7. What can correctional facilities do to help ensure completion of therapy for inmates released or referred while being treated for infection or disease?**

Answers on page 103.



### Case Study 8.1

**As the new public health worker at the state prison (or in any other facility to which you are assigned), you are asked to attend a staff meeting where you have the opportunity to present to the administration a description of your job, your role at the facility, and the process you use to conduct your work. Because you suspect that the facility director has some misunderstandings about TB control, you are quite pleased to have this opportunity. You begin to prepare diligently for the meeting.**

**# What will you tell the director about the primary goals of TB prevention and control?**

**# How will you describe your role at the facility and the process you use to conduct your work?**

Answers on pages 113-114.



## Identify Suspected or Confirmed TB Cases

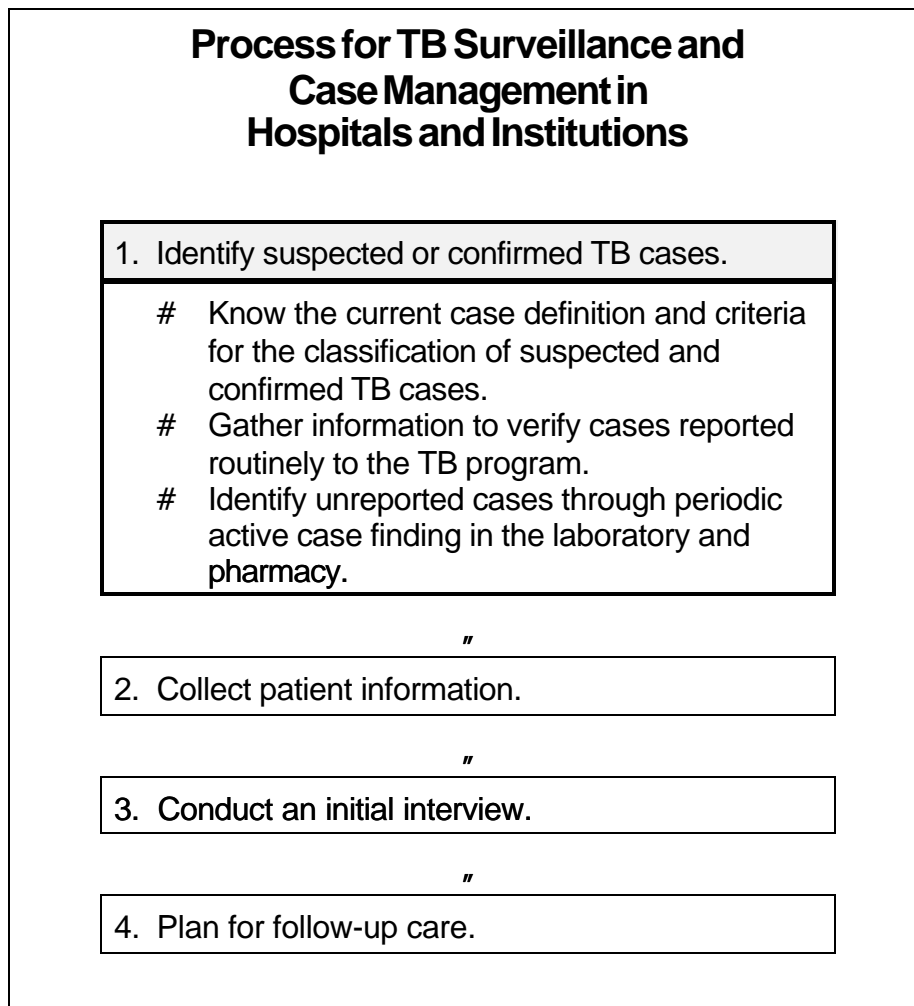


Figure 8.5 Process for surveillance and case management.



.....  
 The first step in the TB surveillance process is to identify suspected or confirmed TB cases.  
 .....

.....  
 A suspected case has a diagnosis that is pending due to an incomplete medical evaluation.  
 .....

.....  
 A TB case is usually confirmed by a positive culture for *M. tuberculosis*.  
 .....

**Case Definition and Classification Criteria**

The first step in the TB surveillance process is to identify suspected or confirmed TB cases. A suspected case has a diagnosis that is pending due to an incomplete medical evaluation. TB disease should be considered when a patient presents with a persistent cough (that is, a cough lasting for 3 or more weeks) or other signs or symptoms compatible with TB disease (for example, bloody sputum, night sweats, weight loss, or fever). The presence of any of the following will increase the suspicion of TB disease:

- # A positive AFB smear
- # A positive tuberculin skin-test result
- # An abnormal, unstable chest radiograph

**A TB case is usually confirmed by a positive culture for *M. tuberculosis*.** However, in some cases, patients are diagnosed with TB disease on the basis of their signs and symptoms, even if their specimen does not contain *M. tuberculosis* (see Module 3, Diagnosis of Tuberculosis Infection and Disease). Other laboratory criteria that can be used for diagnosis include a positive nucleic acid amplification test (provided the test is used as approved by the Food and Drug Administration [FDA]), or demonstration of AFB in a clinical specimen when a culture has not been or cannot be obtained.

Table 8.2 presents the current classification used for describing patients; it is based on the pathogenesis of TB. (See Module 1, Transmission and Pathogenesis of Tuberculosis, and Module 3, Diagnosis of Tuberculosis Infection and Disease for more information on the pathogenesis or diagnosis of TB disease.)



.....  
In most states, facilities are required by law to immediately report suspected or confirmed TB cases to the TB program.  
.....

In most states, facilities are required by law to immediately report suspected or confirmed TB cases (Class 3 or Class 5) to local or state health departments. A case report form usually is completed for every suspected or confirmed TB case by the infection control practitioner or by a physician; in many jurisdictions, specific legislation requires that this report be submitted within 24 hours.

.....  
Close collaboration and effective communication with the infection control practitioner and other key staff can ensure that suspected cases are appropriately managed.  
.....

Laws requiring that suspected TB cases be reported vary from jurisdiction to jurisdiction. A significant period of time can occur before a final diagnosis of TB is made. If the law does not require the reporting of suspected cases in a jurisdiction, specific policies and procedures regarding suspected cases should exist or be developed in the hospitals and institutions where public health workers are assigned. Close collaboration and effective communication with the infection control practitioner and other key staff can ensure that suspected cases are appropriately managed. At all times, laws and regulations on patient confidentiality must be upheld (see Module 7, Confidentiality in Tuberculosis Control, for further details).



**Table 8.2**  
**Classification System for TB**

<b>Class</b>	<b>Type</b>	<b>Description</b>
0	No exposure to TB Not infected	No history of exposure, negative reaction to the tuberculin skin test
1	Exposure to TB No evidence of infection	History of exposure, negative reaction to a tuberculin skin test (given at least 10 weeks after exposure)
2	TB infection No TB disease	Positive reaction to the tuberculin skin test, negative bacteriologic examinations (if done), no clinical or x-ray evidence of TB disease
3	Current TB disease	Meets current laboratory criteria (for example, a positive culture) <b>or</b> criteria for current clinical case definition
4	Previous TB disease (not current)	Medical history of TB disease, <b>or</b> Abnormal but stable x-ray findings for a person who has a positive reaction to the tuberculin skin test, negative bacteriologic examinations (if done), and no clinical or x-ray evidence of current TB disease
5	TB suspected	Signs and symptoms of TB disease, but evaluation not complete (diagnosis pending)



The two basic methods for identifying suspected or confirmed TB cases are

- # Routine case reporting
- # Active case finding

.....  
 In routine case reporting, physicians and other persons submit reports of suspected or confirmed TB cases as they are detected to a public health authority that collects and analyzes the information.

.....

.....  
 In active case finding, the TB program identifies unreported cases of disease by actively searching for TB cases through, for example, laboratory and pharmacy audits

.....

**Routine case reporting** is the required reporting of suspected or confirmed TB cases to a public health authority. In routine case reporting, physicians and other persons (for example, infection control practitioners, pharmacists, laboratory staff) submit reports of suspected or confirmed TB cases, as they are detected, to a public health authority that collects and analyzes the information. In **active case finding**, the TB program identifies unreported cases of disease by actively searching for TB cases through, for example, laboratory and pharmacy audits; active case finding can be designed and implemented in several ways, depending on local needs and practices. In addition to the public health worker's responsibilities with cases routinely reported to the TB program, he or she may also be doing active case finding to identify suspected or confirmed TB cases that have not been reported.

**Routine Case Reporting**

Patient assessments and diagnoses are carried out by all health care facilities and many residential institutions. When hospital or institutional staff admit patients, it is important that they

- # Be alert for TB symptoms
- # Question patients about TB risk factors
- # Request further evaluation for persons who may have undiagnosed TB
- # Raise awareness about TB reporting laws



.....  
Immediately after they are admitted, patients with suspected or confirmed TB should be brought to the attention of whomever has lead responsibility for TB surveillance in the facility.  
.....

Immediately after they are admitted, patients with suspected or confirmed TB should be brought to the attention of whomever has lead responsibility for TB surveillance in the facility. Generally, information about the diagnosis, the identification and location of the patient, and possible barriers to adherence are reported to this person. If infectious TB disease is suspected, the patient should be isolated in accordance with the facility's infection-control plan. Once a suspected or confirmed case is reported to the TB program, the public health worker should help collect any information needed to verify the case.

.....  
It is crucial that information on past treatment be given immediately to the health care worker managing the case.  
.....

When a case report has been submitted, the public health worker should check the TB program database to see if the case has been reported previously. If so, he or she should obtain a print-out of all the patient's past clinic visits, chest x-ray reports, adherence history, bacteriology and susceptibility results, and medication history, including the administration of directly observed therapy (DOT). It is crucial that this information be given immediately to the health care worker managing the case to ensure appropriate medical treatment; if necessary, the patient should be asked to sign a medical release form so this information can be shared with his or her current providers. As confidentiality laws permit, this information may also be shared with others providing direct care to the patient (see Module 7, Confidentiality in Tuberculosis Control).





### Active Case Finding

Within a hospital or institution, public health workers can conduct active case finding by

- # Collaborating closely with the infection control practitioner
- # Monitoring the use of negative-pressure isolation rooms that may be used to isolate patients with suspected TB disease

In addition to these activities, public health workers may make routine visits to the pharmacies and to the mycobacteriology and pathology laboratories used by the facilities to which they are assigned for TB surveillance.

With the collaboration of laboratory or pharmacy staff, public health workers can use the information found there to

- # Actively search for unreported TB cases
- # Confirm suspected TB cases once the medical evaluation is completed
- # Monitor the progress of reported TB patients (for example, through sputum and culture conversion or prescription refills)
- # Collect information on possible drug resistance and the adequacy of the current regimen

.....  
 Public health workers may make routine visits to pharmacies and laboratories used by the facilities to which they are assigned for TB surveillance.  
 .....



.....  
In many areas, active case finding will be most effective when targeted to specific laboratories or pharmacies.  
.....

Active case finding projects with laboratories or pharmacies require a special agreement regarding the sharing of information; their feasibility depends on local reporting and confidentiality laws and regulations. In many areas, active case finding will be most effective when targeted to specific laboratories or pharmacies with the goal of reviewing specific data. For TB cases that have already been reported by hospital or institution staff, laboratories and pharmacies may already share information with the infection control practitioner. If this is the case, the public health worker should obtain such information from the infection control practitioner.

.....  
AFB smear results and culture results should be reviewed periodically to identify unreported suspected or confirmed TB cases, as well as new information about reported cases.  
.....

**Laboratories.** Most of the information the public health worker needs to conduct active case finding is included in the **laboratory results**. These records present the results of every laboratory test that has been done on the patient, such as AFB smear examinations, cultures, and drug susceptibility tests. Test results related to TB are recorded in a computer database or an **AFB logbook**, a logbook kept in the mycobacteriology laboratory that contains the results of acid-fast bacilli (AFB) smear examinations; it may be called a smear mycobacteriology log. The logbook or database is usually updated daily. AFB smear results and culture results should be reviewed periodically to identify unreported suspected or confirmed TB cases, as well as new information about reported cases. Local confidentiality laws and regulations must be considered. Special agreements between the laboratories and the health department regarding the sharing of information should be established. The results of drug susceptibility testing should be reviewed to identify drug-resistant cases of TB. At the same time, the public health worker may also collect information about the date of sputum and culture conversions from positive to negative; this will help him or her to monitor each patient's progress.



For each result of interest, record the patient's

- # Name
- # Date of birth
- # Medical record number
- # Laboratory number
- # Date of specimen collection
- # Type of specimen
- # AFB smear result (with quantification)
- # Culture result (with species identification)
- # Drug susceptibility pattern
- # Case report number (if indicated)

If the culture result is pending on a suspected TB case, the case should be classified as “Class 5, pending culture” until a diagnosis of TB disease has been confirmed or ruled out by the patient’s provider. Any patient with a positive culture for *M. tuberculosis* has a confirmed case of TB disease (Class 3).

.....  
Public health workers should be familiar with the average turnaround times for laboratory examination.  
.....

Public health workers should be familiar with the average turnaround times for laboratory examination. Results of AFB smears should be available within 24 hours of specimen collection. Culture results should be available within 10 to 14 days of specimen collection, with drug susceptibility results available 1 to 3 weeks later. Results showing resistance to any drug are usually verified, which can cause a delay of several weeks. In addition, delays may occur in the reporting of all laboratory results due to shipping and processing of specimens.



.....  
It is very important to make the patient's current provider aware of drug susceptibility test results as soon as they are available.  
.....

The results of drug susceptibility testing are often not available until 1 to 3 weeks after the initial positive culture result. By that time, the patient may have been discharged and be under the care of another provider. It is very important to make the patient's current provider aware of drug susceptibility test results as soon as they are available. Laboratory staff should forward drug susceptibility results promptly to the health department.

The **pathology laboratory**, a laboratory that performs tests and examinations on tissue and biopsy specimens, will have reports on any tissue specimens or biopsies that were submitted for analysis (for example, when a case of extrapulmonary TB is suspected). As with the mycobacteriology laboratory, the public health worker should conduct periodic audits in the pathology laboratory to identify all patients with positive AFB smears or other relevant results from histologic exams.



.....  
Pharmacy surveillance in hospital or other institution pharmacies can also help to identify unreported cases of TB disease.  
.....

**Pharmacies.** Pharmacy surveillance in hospital or other institution pharmacies can also help to identify unreported cases of TB disease (see Figure 8.6). In the absence of documented culture-positive disease, a patient may still be diagnosed with TB disease on the basis of clinical or x-ray evidence of current TB disease. If this is the case, the patient’s clinician will often treat presumptively for TB. When patients are being treated for TB based on a clinical diagnosis (i.e., no positive culture result), pharmacy records can be an important active case finding tool. Information found in the pharmacy records can be used to identify patients who are placed on two or more TB medications (and therefore may have active TB disease, not only TB infection). If feasible, on a periodic basis the pharmacy may be able to print out a data sheet of any patient on TB drugs for the public health worker. Local confidentiality laws and regulations must be considered. Special agreements between pharmacies and health departments regarding the sharing of information should be established.



Figure 8.6 Example of active case finding: pharmacy surveillance.

.....  
In most areas of the country,  
the initial regimen for  
treating TB disease should  
include four first-line TB  
drugs.  
.....

In most areas of the country, the initial regimen for treating TB disease should include four **first-line TB drugs**:

- # Isoniazid (INH)
- # Rifampin (RIF)
- # Pyrazinamide (PZA) and either
- # Ethambutol (EMB) or streptomycin (SM)

In areas where less than 4% of cases are resistant to INH (first drug susceptibility test only), three drugs (INH, RIF, and PZA) may be adequate for the initial regimen, provided the patient has no risk factors for drug-resistant disease. If the bacilli are susceptible to INH and RIF, the standard regimen includes 2 months of the above initial regimen followed by 4 months of treatment with INH and RIF alone (see Module 4, Treatment of Tuberculosis Infection and Disease).



.....  
The focus of pharmacy surveillance is the identification of patients who are placed on two or more first-line TB drugs.  
.....

The focus of pharmacy surveillance is the identification of patients who are placed on **two or more first-line TB drugs**. The reason for specifying two or more drugs is because patients who may be on isoniazid (INH) therapy only are most likely on a regimen for the treatment for LTBI and not a regimen for the treatment of TB disease.

Likewise, **second-line TB drugs**, which are drugs used to treat TB resistant to first-line drugs, are generally not included in TB pharmacy surveillance. Many second-line TB drugs (for example, ciprofloxacin, amikacin) are used primarily to treat diseases other than TB; therefore, pharmacy surveillance does not usually include these drugs.

Participating pharmacies should allow the public health worker to record the names of all patients receiving at least two of the first-line medications listed above. The public health worker should then check to see if the case has already been reported to the TB program. Additional information from the patient’s health care provider may be necessary to determine if the patient has suspected or confirmed TB disease.

.....  
Whenever active case finding has identified an unreported TB case, the public health worker should alert the facility’s staff and a supervisor in the TB program.  
.....

Whenever active case finding has identified an unreported TB case, the public health worker should alert the facility’s staff and a supervisor in the TB program. The public health worker should work together with these persons to make sure a report is promptly submitted and to assess the cause of the failure to report.



**Study Questions 8.8-8.10**

- 8.8. Name three things that will increase the suspicion of TB disease.**
- 8.9. Under the classification system for TB, give the class (0-5) for each type listed.**
- \_\_\_ **TB suspected**
  - \_\_\_ **Current TB disease**
  - \_\_\_ **Exposure to TB, no evidence of infection**
  - \_\_\_ **Previous TB disease (not current)**
  - \_\_\_ **No exposure to TB, not infected**
  - \_\_\_ **TB infection, no disease**
- 8.10. Explain the two basic methods for identifying suspected or confirmed TB cases, and how they are put into practice.**

Answers on page 104.





**Study Questions 8.11-8.12**

**8.11. How can public health workers use the information found in laboratories and pharmacies?**

**8.12. What drugs are the focus of pharmacy surveillance?**

Answers on page 105.





**Case Study 8.3**

**Another public health worker is conducting active case finding in a large residential facility for the mentally ill. The public health worker goes to the facility’s pharmacy to review information about patients receiving TB medications. For the current week, she notes that prescriptions of TB medications were filled for the following patients:**

<b>Patient ID</b>	<b>Medication Orders Filled</b>
<b>X309</b>	<b>Isoniazid</b>
<b>D904</b>	<b>Isoniazid, pyrazinamide, rifampin, ethambutol</b>
<b>P251</b>	<b>Isoniazid, rifampin</b>
<b>Q321</b>	<b>Ciprofloxacin, amikacin</b>

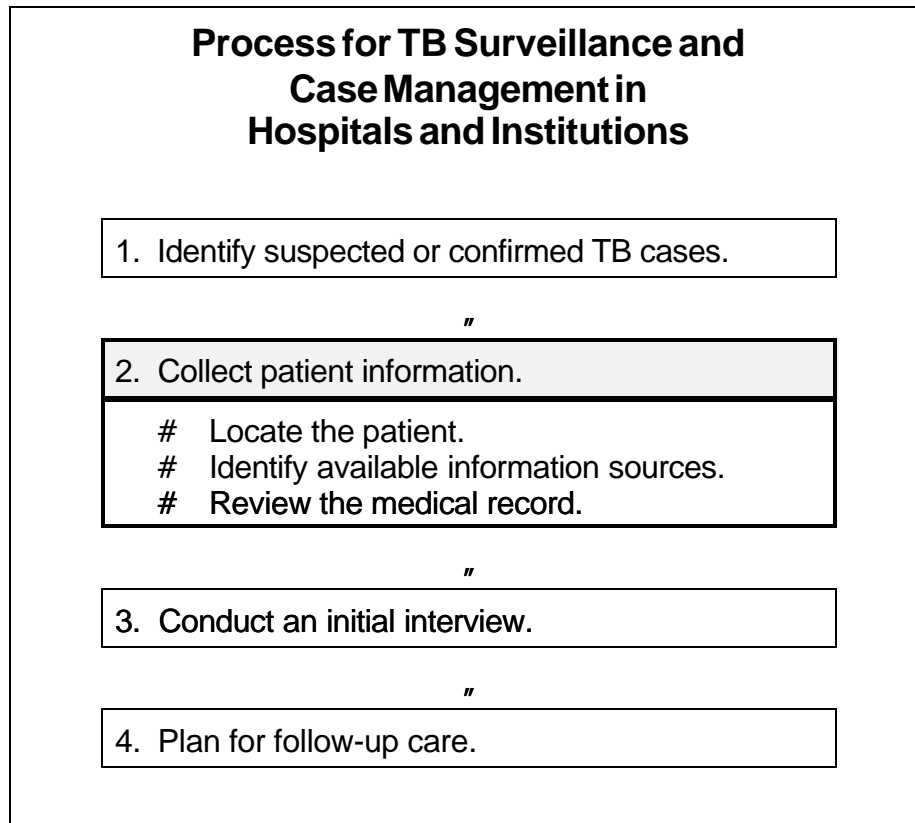
**# What patients should the public health worker record for follow-up? Why?**

**# Patient P251 is not known to the TB program as a reported suspected or confirmed TB case. What should be done?**

Answers on pages 116-117.



## Collect Patient Information



*Figure 8.7 Process for TB surveillance and case management.*



. . . . .  
When a patient is hospitalized or in an institution, the public health worker will need to locate the patient, identify available information sources in the hospital or institution, and review the patient's medical record.  
. . . . .

### **Collecting Information**

Once a TB case has been reported, the identified patient is usually assigned to a specific public health worker who will manage his or her case. When a patient is hospitalized or in an institution, the public health worker will need to locate the patient, identify available information sources in the hospital or institution, and review the patient's medical record. To gather the necessary information and ensure that it is complete and accurate, the public health worker may need to go to several different locations.

It is important to collect information on reported TB cases in order to

- # Complete all necessary forms for reporting requirements, in accordance with local laws and regulations
- # Determine the need for and scope of a contact investigation
- # Be alerted to the presence of drug resistance or potential adherence problems
- # Gather background information needed to conduct the initial interview
- # Plan for and arrange the patient's care both during and after hospitalization or stay in an institution



.....  
If a patient with suspected or confirmed TB disease has left the facility or has died, record any available addresses from the medical record and report this immediately to the TB program.  
.....

.....  
Specific information on the patient's treatment regimen, infectiousness, and symptoms can be found at the hospital ward or location in the institution where the patient is receiving care.  
.....

### **Locating the Patient**

To locate a hospitalized patient or an institutional resident, the public health worker should call the central information number, if available, or check with the information desk receptionist. He or she should ask for the patient's current room number and ward or building location, as well as a phone number, if available. If necessary, the public health worker may need to go to the admissions or administrative office. Because patients are often transferred from ward to ward or from room to room, it is important to get current locating information. If a patient with suspected or confirmed TB disease has left the facility or has died, record any available patient addresses (for example, home address, next of kin, receiving facility) from the medical record and report this immediately to the TB program.

### **Sources of Information**

Specific information on the patient's treatment regimen, infectiousness, and symptoms can be found at the hospital ward or location in the institution where the patient is receiving care. There, patient information can be obtained from the facility's computer or the patient's medical record. The nursing staff or clerks on the ward should be able to help the public health worker locate the patient's medical record. Hospital or institutional policies on the use of computers will vary; the public health worker will need explicit permission and, in most cases, basic training in the system used and an access code in order to access computer records. In some jurisdictions, it is necessary to obtain patient consent to access the medical record. When gathering personal information about a patient, it is crucial to respect confidentiality and prevent unauthorized persons from gaining access to the record (see Module 7, Confidentiality in Tuberculosis Control, for further information).



.....  
Laboratory reports are the definitive source for laboratory results and should always be reviewed or obtained.  
.....

As discussed in the previous section, a hospital's mycobacteriology laboratory has a logbook or database containing AFB smear results, culture results, and drug susceptibility patterns. The pathology laboratory will have the results of AFB smears done on any tissue specimens submitted. Although a computer database or the patient's medical record will also have much of this information, it may not be complete or accurate; laboratory reports are the definitive source for laboratory results and should **always** be reviewed or obtained. Pharmacy records may also be available for review and verification.

Table 8.3 summarizes where important patient information can be found.



**Table 8.3**  
**Sources of Patient Information**

<b>Information</b>	<b>Sources</b>
Patient's understanding and acceptance of TB diagnosis	Patient
Patient location (in the facility) and addresses	Central information phone number Information desk receptionist Hospital admissions office Institution administration office
Results of diagnostic evaluation	Computer database Patient's medical record Laboratory records Radiology department
Treatment regimen and progress	Computer database Patient's medical record Nursing staff and physicians Pharmacy records Laboratory records Radiology department
Potential adherence problems	Patient's medical record Social worker Nursing staff and physicians Family members and other visitors
Past TB history	Patient's medical record TB program records and staff





.....  
The public health worker should review the patient's medical record and summarize information that is pertinent to TB treatment.  
.....

.....  
The medical record contains a wealth of information, but finding specific information can be difficult unless the public health worker knows where to look.  
.....

### Medical Record Review

For each reported or suspected TB case, the public health worker should review the patient's medical record and summarize information that is pertinent to TB treatment. The medical record (Figure 8.8) contains a wealth of information, but finding specific information can be difficult unless the public health worker knows where to look. A medical record, labeled with a medical record number, is usually organized into several sections, each of which contains different information. While the patient is hospitalized or under care in a facility, these sections are usually clearly marked, divided, and are often color-coded. After the patient is discharged, the medical record is sent to the **medical records department**, a department in a hospital or other health care facility that houses the records of patients who have been admitted to the hospital and subsequently have been discharged, transferred to ambulatory care services, left against medical advice, or died. It is rare to find clearly differentiated sections. Although there may be some variability from facility to facility, most will follow the general pattern presented in this section.

Medical records contain a lot of abbreviated medical terminology. It is important to know what these terms mean in order to understand what is written in the medical record. A list of common abbreviations found in medical records is presented at the end of this module in the appendix.



*Figure 8.8 Health care worker reviewing medical record.*



.....  
Important information can be found in the main sections of the patient's medical record: identification data, progress notes, nurses' notes, physicians' orders, medication record, laboratory results, and radiology reports sections.  
.....

The main sections of the patient's medical record are as follows:

- # **Identification data**, including the patient's name, address, social security number, date of birth, and other demographic information (may be a separate registration form)
- # **Progress notes**, in which all physicians and other specialists continuously record patient information during a patient's hospital stay; they are an important resource for information and may include nurses' notes and notes from other ancillary staff
- # **Nurses' notes**, in which the nurses who directly care for the patient continuously record information, including the patient's symptoms, medications given, and scheduled procedures or activities, and may be included in the progress notes section
- # **Physician's orders**, in which the physician(s) prescribes medications, orders laboratory tests or procedures (for example, bronchoscopy or gastric aspiration), and delivers other patient-care instructions to staff. Medication orders specify date, name of medication, dosage, and duration of treatment (in days or in number of doses)
- # **Medication record**, an information sheet on which the nurses record the date, time, and amount of prescribed medications given to the patient during hospitalization or care in a facility; may not be included in patient's medical record (for example, may be kept in a separate medication logbook)
- # **Laboratory results**, records presenting the results of every laboratory test that has been done on the patient, such as AFB smear examinations, cultures, and drug susceptibility tests performed in a laboratory



.....  
Knowing how the sections of  
a medical record are  
organized can help the public  
health worker locate  
important information.  
.....

# **Radiology reports**, reports summarizing all radiology procedures performed on the patient (for example, chest radiographs or CT scans)

Knowing how the basic sections of a medical record are organized can help the public health worker locate important patient information. The best place to begin is usually the progress notes.

**Progress Notes.** The progress notes section contains a great deal of information, and is often preceded by

# An **admission note**, patient information recorded at the time of admission to a hospital, usually including the admission diagnosis and initial plan for diagnostic work-up; usually included in the progress notes.

# A **history and physical exam (H&P) form**, a standardized form sometimes used to record patient information at the time of the patient's first evaluation; may be used instead of an admission note and is usually included in the progress notes

# An **emergency room/department assessment form**, patient information recorded when a patient is brought to an emergency room; may be used instead of an admission note and is usually included in the progress notes

These forms are used to record patient information at the time of the patient's first evaluation. This section should contain a patient's full medical history, his or her reasons for hospitalization, and the physician's initial diagnosis and plans for evaluation.

The admission note will usually follow the general outline presented in Table 8.4.



**Table 8.4**  
**General Outline for Admission Notes**

Section	Description
Chief complaint	The patient’s symptoms and reason for seeking medical help
History of present illness	A full history of the current illness
Past medical history	All relevant medical and surgical information and prior hospitalizations
Social history	The patient’s marital status, occupation, and any social problems (for example, alcohol or drug abuse)
Family history	A brief description of illnesses or cause of death in the family
Physical exam	A record of the findings of a full physical exam
Laboratory	The results of laboratory tests done on admission
Radiology	A record of all radiology procedures (i.e., chest x-rays) done on admission
Assessment	A brief summary of the preceding sections and a statement of the possible diagnoses
Plan	Usually a problem list and the plan for diagnosis and treatment

.....  
 The physicians caring for the patient write daily progress notes for the patient and any results from the ongoing diagnostic evaluation.

Following the admission note, the physicians caring for the patient write daily progress notes for the patient and any results from the ongoing diagnostic evaluation. These are usually dated and sometimes will be titled, too. Progress notes are occasionally referred to as **SOAP** notes and include

.....  
 Progress notes are occasionally referred to as SOAP notes

# **Subjective progress** – symptoms

# **Objective progress** – relevant medical, laboratory, or exam results



# **Assessment** – An evaluation of the patient’s illness and progress

# **Plans** – plans for further diagnostic tests or treatment

Other notes in the progress section may include

# Service notes (used to give information to the next physician in a rotation)

# Consultation notes from specialists (for example, infectious disease physicians or social workers)

# Notes of procedures performed on the patient (for example, sputum induction or bronchoscopy)

The progress notes section contains a great deal of information, much of which is repetitive or irrelevant to TB care. It is helpful if the section is organized chronologically, with a title and the date of the note recorded in the first line; unfortunately, this is not always the case. Depending on the facility’s procedures, sections may be grouped

# In an integrated, strictly chronologic sequence

# By department or specialty

# In a “problem-oriented” format that divides the record by the patient’s major presenting problems

Rarely, the medical records for a family are grouped together into a single file.



.....  
The public health worker should check the admission notes for information on prior treatment (completed or not) with TB medications or evidence of a prior hospitalization for TB.

.....

.....  
The assessment section may also include important information about previously documented TB infection or medical conditions that can increase the risk that TB infection will progress to disease.

.....

**TB-Related Information.** The public health worker should check the admission notes for information on prior treatment (completed or not) with TB medications or evidence of a prior hospitalization for TB. Again, if this is missing from the medical record for a patient with a past history of TB, the public health worker should search the TB program records and provide this information to the patient’s providers. The patient’s past medical history and the possible diagnoses listed in the assessment section may also include important information about previously documented TB infection or medical conditions that can increase the risk that TB infection will progress to disease (for example, HIV infection, injection of illicit drugs, or immunosuppressive therapy); the public health worker should make a note of these conditions when present. The public health worker may also find information about the patient’s current living situation and potential barriers to completion of therapy.

Table 8.5 summarizes important information and the most likely places it can be found.

The health care worker should have a standard form or checklist to gather important information from the patient’s medical record and other sources to report back to the health department.

Figure 8.9 is an example of a form used by public health workers and other personnel to gather relevant information to report a case of TB to the health department.



**Table 8.5**  
**TB-Related Information in the Medical Record**

<b>Type of Information</b>	<b>Probable Location</b>
Patient identification	Identification data sheet or registration form
Locating information	Identification data sheet Progress notes by social workers
Status of TB diagnosis	Admission note (under history of present illness or assessment) Progress notes Laboratory results section
TB exposure	Admission note (under history of present illness, past medical history, or family history) Progress notes
TB symptoms	Admission note (under chief complaint or history of present illness)
Past history of TB	Admission note (under history of present illness or past medical history)
Skin test results	Admission note (under history of present illness) Progress notes, especially nurses' notes
Chest radiograph readings	Admission note (under laboratory) Progress notes Radiology section
Bacteriology	Progress notes Laboratory results section Laboratory records
Treatment	Progress notes Physician's orders Medication record
Response to treatment	Progress notes Nurses' notes Laboratory results section
Social history	Admission note (under past medical history and social history) Progress notes by nurses and social workers





### Tuberculosis Suspect/Case Report

Department of Health  
Tuberculosis Control Program

DATE OF REPORT  
Month Day Year

100 Main Street  
City, State 99999  
Tel.# (999) 123-4567

HEALTH DEPARTMENT ONLY  
CASE NUMBER

NAME LAST		FIRST		A.K.A.		PATIENT'S TELEPHONE NO. ( )		PT'S MEDICAL RECORD NUMBER	
STREET:		APT		COUNTY		ZIP CODE			
EMPLOYED BY						TELEPHONE NO ( )			
DATE OF BIRTH Month Day Year		SEX <input type="checkbox"/> MALE <input type="checkbox"/> FEMALE		RACE <input type="checkbox"/> WHITE <input type="checkbox"/> AMERICAN INDIAN OR ALASKAN NATIVE <input type="checkbox"/> BLACK <input type="checkbox"/> ASIAN OR PACIFIC ISLANDER		ETHNICITY <input type="checkbox"/> HISPANIC <input type="checkbox"/> NON HISPANIC			
SOCIAL SECURITY NO			MEDICAID #			MOTHER'S MAIDEN NAME			
TUBERCULOSIS DIAGNOSIS: Check all disease sites. <input type="checkbox"/> PULMONARY <input type="checkbox"/> GENITOURINARY <input type="checkbox"/> LYMPHATIC <input type="checkbox"/> BONE AND/OR JOINT <input type="checkbox"/> MENINGEAL <input type="checkbox"/> PERITONEAL <input type="checkbox"/> PLEURAL <input type="checkbox"/> MILIARY <input type="checkbox"/> OTHER (SPECIFY) _____									
BACTERIOLOGY: (Please provide the laboratory finding on which diagnosis is based)						DATE SPECIMEN COLLECTED: ___/___/___			
NAME OF LABORATORY: _____									
SOURCE OF SPECIMEN:					SMEAR		CULTURE		
<input type="checkbox"/> SPUTUM <input type="checkbox"/> OTHER PHYSIOLOGICAL FLUID					<input type="checkbox"/> POSITIVE <input type="checkbox"/> NOT DONE		<input type="checkbox"/> POSITIVE MTB <input type="checkbox"/> NOT DONE		
<input type="checkbox"/> TISSUE TYPE _____					<input type="checkbox"/> NEGATIVE <input type="checkbox"/> PENDING		<input type="checkbox"/> NEGATIVE <input type="checkbox"/> CONTAMINATED		
							<input type="checkbox"/> PENDING <input type="checkbox"/> OTHER _____		
CHEST X-RAY: DATE: ___/___/___					SKIN TEST: DATE: ___/___/___				
<input type="checkbox"/> NORMAL <input type="checkbox"/> ABNORMAL/ALTERNATE <input type="checkbox"/> ABNORMAL/ALTERNATE NON-CAVITARY CONSISTENT WITH TB					<input type="checkbox"/> POSITIVE <input type="checkbox"/> NEGATIVE <input type="checkbox"/> NOT DONE <input type="checkbox"/> UNKNOWN				
<input type="checkbox"/> ABNORMAL/ALTERNATE NON-CAVITARY NOT CONSISTENT WITH TB					<input type="checkbox"/> MANTOUX _____mm <input type="checkbox"/> ANOTHER: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> UNKNOWN				
HOSPITALIZATION: Is patient presently hospitalized? <input type="checkbox"/> YES <input type="checkbox"/> NO DATE ADMITTED: ___/___/___ HOSPITAL & CITY: _____									
DRUG THERAPY STATUS:					DRUG AND TOTAL DAILY DOSAGE:				
<input type="checkbox"/> NOT ON ANTI-TB DRUGS (Why?) _____					ISONIAZID (INH) _____(mg) ETHIONAMIDE _____(mg)				
<input type="checkbox"/> ON ANTI-TB DRUGS SINCE (Date?): ___/___/___					RIFAMPIN (RIF) _____(mg) CYCLOSERINE _____(mg)				
IS PATIENT AWARE OF TB STATUS <input type="checkbox"/> YES <input type="checkbox"/> NO					PYRAZINAMIDE (PZA) _____(mg) PAS _____(mg)				
IS PATIENT ALIVE <input type="checkbox"/> YES <input type="checkbox"/> NO					ETHAMBUTOL (EMB) _____(mg) CIPROFLOXACIN _____(mg)				
IF NOT, DATE OF DEATH ___/___/___					STREPTOMYCIN _____(mg) OFLOXACIN _____(mg)				
					KANAMYCIN _____(mg) RIFABUTINE _____(mg)				
					AMIKACIN _____(mg) CLOFAZMINE _____(mg)				
					CAPREOMYCIN _____(mg) OTHER _____(mg)				
CONDITIONS THAT WOULD AFFECT TB TREATMENT: <input type="checkbox"/> HIV + <input type="checkbox"/> HOMELESS <input type="checkbox"/> OTHER RISK FACTORS _____									
WILL TB TREATMENT BE CONTINUED IN YOUR FACILITY AFTER DISCHARGE? <input type="checkbox"/> YES <input type="checkbox"/> NO									
IF NO, WHERE WILL TREATMENT BE GIVEN _____									
FACILITY: _____									
ADDRESS: _____ TELEPHONE NO: _____									
DOES PATIENT HAVE PAST HISTORY OF TB? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, DATE DIAGNOSED (Mo/Yr) ___/___/___									
TB DRUGS USED: _____ WHERE DIAGNOSED _____									
TYPE OF REPORT: <input type="checkbox"/> HOSPITAL <input type="checkbox"/> DOH CLINIC <input type="checkbox"/> PRIVATE PHYSICIAN <input type="checkbox"/> LOCAL HEALTH UNIT <input type="checkbox"/> OTHER (Specify) _____									
REPORTED BY: _____ TITLE: _____ TELEPHONE NO: _____									
ADDRESS: _____									
FOR ADDITIONAL INFORMATION ON THE PATIENT: CONTACT ABOVE/OR NAME: _____									
ADDRESS: _____ TELEPHONE NO: _____									

Figure 8.9 Sample of a medical records abstract form; adapted from New York City reporting form.



.....  
The administration of the PPD should be noted, followed by the results (in millimeters of induration) 48 to 72 hours later.  
.....

**Diagnosis.** The public health worker should follow the daily progress notes chronologically to find skin test results. The administration of the PPD should be noted, followed by the results (in millimeters of induration) 48 to 72 hours later. This information may be included in the nurses' notes, if these are separate. If no results are given and the PPD has not yet been read, the public health worker may need to read the skin test reaction himself or herself; however, the public health worker should never record results in a medical record. It is better for the public health worker to ask a nurse from the institution to read the skin test and document the results in the patient's record.

Look in the radiology section for chest radiograph readings. When reviewing these reports, look in the concluding summary for a mention of cavities, infiltrates, pleural effusions, or hilar adenopathy and words like "stable" or "improving."

.....  
The public health worker's source for smear and culture results should be the actual report included in the laboratory results section or the laboratory's records.  
.....

The public health worker's source for smear and culture results should be the actual report included in the laboratory results section or the laboratory's records. When smear or culture results are listed in the laboratory results section as pending, record the specimen number and date of submission and collect the results from the laboratory, provided adequate time has elapsed since specimen collection. All laboratory results listed in the progress notes should be verified for accuracy.



.....  
The medication record section is the most accurate record of which doses were actually given and when.  
.....

**Treatment.** When looking for information on the current treatment regimen, the public health worker should use the medication record section. This is the most accurate record of which doses were actually given and when; orders written in the physician's orders section will sometimes not be immediately acted upon. Some hospitals or institutions use a separate book to record all medications administered to patients on a specific ward. The public health worker should clarify with hospital staff what is meant by administration of medication; often, this does not include watching the patient swallow the medication. If the public health worker is aware of potential adherence problems, he or she may request that the administering nurse provide DOT.

To evaluate the patient's response to treatment, the public health worker should find information on the patient's symptoms in the admission note and the start date of his or her medication. The public health worker should look through the medical record from this date on for specific TB symptoms (especially cough, fever, and weight loss). Also, the public health worker should look through the laboratory results section for smear and culture results on specimens collected after treatment has begun.

It is important to collect information on the patient's potential adherence in order to plan for and arrange the patient's care both during and after hospitalization or stay in an institution. Information about potential adherence problems may come from the patient's medical record, social worker, nursing staff and physicians, and family members or other visitors.



.....  
To help evaluate the patient's potential adherence to therapy, it is important to note pertinent social history.  
.....

To help evaluate the patient's potential adherence to therapy, it is important to note pertinent social history. The public health worker should find out if the patient is foreign-born or does not speak English; if so, the public health worker will need a translator for the patient interview and subsequent care. The public health worker should look for and note a history of residence in a congregate setting such as a prison, nursing home, hospital, or shelter. Also, note any history of drug or alcohol abuse, homelessness, mental health problems, or previous nonadherence.

.....  
After reviewing the patient's medical record thoroughly, the public health worker should summarize important information in a clearly written, organized report.  
.....

After reviewing the patient's medical record thoroughly, the public health worker should summarize important information in a clearly written, organized report. This is important, because once a patient is discharged, the medical record becomes more difficult to access. A thorough review while the patient is in the facility can save the public health worker a great deal of backtracking and extra work at a later date. The public health worker may also need to formulate an action plan for determining

- # What information is missing or pending?
- # Where and when to collect this information?
- # Who will need the information?



**Study Question 8.13-8.14**

**8.13. How should a public health worker locate a patient in a facility and where would he or she find patient addresses?**

**8.14. Where can smear and culture results for a reported TB case be found?**

Answer on page 106.



**Study Questions 8.15-8.16**

**8.15. Describe seven main sections of the patient's medical record.**

**8.16. Why is it important to gather information on the patient's potential adherence?**

Answers on pages 106-107.



### Case Study 8.4

You have received notification of a suspected TB case in Hospital Y and have located the patient's medical record. The admission note reads as follows:

This is a 35 y.o. man presenting with a productive cough, CP, and hemoptysis. On exam he is found to be cachectic with coarse breath sounds bilaterally. Lab values are significant for a low WBC. He has a cavity in the LUL on CXR. Most likely diagnosis is TB, however will r/o pneumonia.

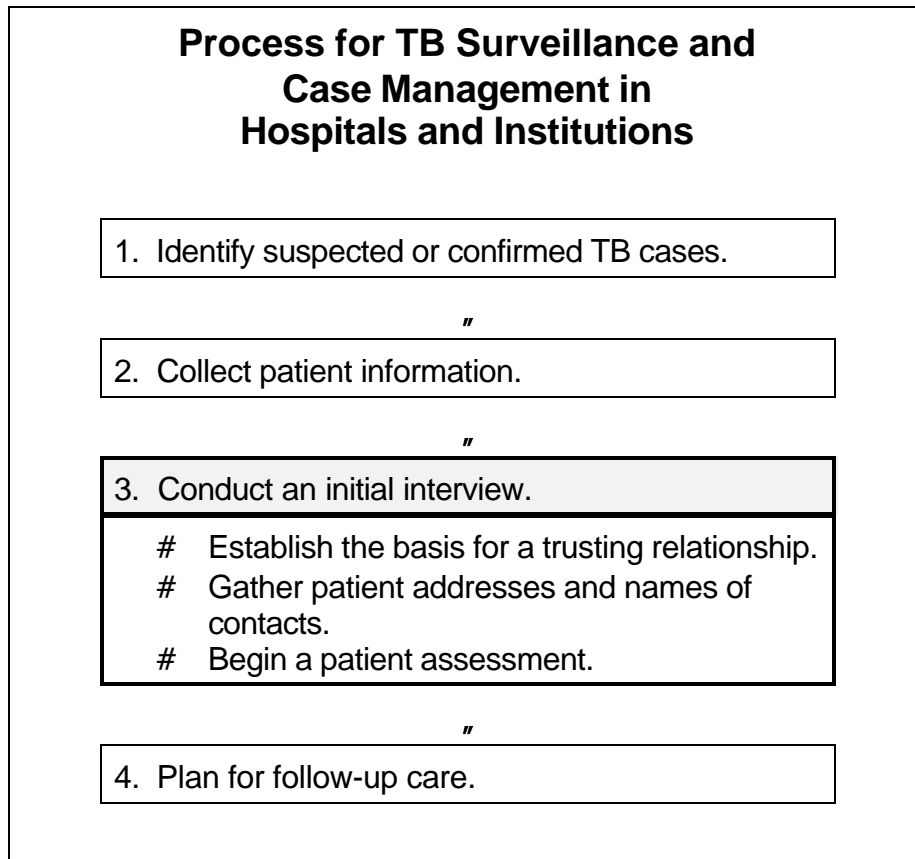
# Does this information confirm a diagnosis of TB? (*Hint: Use the medical glossary in the appendix for help with the abbreviations.*)

# What additional information is needed and where will you look for it?

Answers on pages 117-118.



## Conduct an Initial Interview



*Figure 8.10 Process for TB surveillance and case management.*





.....  
The initial patient interview is very important and should be used to establish the foundation for a good relationship with the patient based on mutual trust and understanding.  
.....

### **The Initial Interview**

Once a TB case has been reported and information has been collected on the patient, the public health worker should prepare for the initial patient interview. The initial patient interview is very important and should be used to

- # Establish the foundation for a good relationship with the patient based on mutual trust and understanding
- # Confirm what the patient’s address will be after discharge and gather information on contacts who may have been infected with *M. tuberculosis*
- # Begin an assessment of the patient’s knowledge, feelings, and beliefs about TB
- # Discuss the importance of adherence to the TB treatment regimen

In addition, the initial interview (Figure 8.11) is a good opportunity for the public health worker to

- # Get to know the patient
- # Educate the patient about TB
- # Look for factors that may affect the patient’s adherence to treatment
- # Arrange a follow-up visit with the patient (see Module 9, Patient Adherence to Tuberculosis Treatment)



*Figure 8.11 Patient interview.*

.....  
The initial interview provides  
a good opportunity for the  
public health worker to  
gather information from the  
patient.  
.....

The initial interview provides a good opportunity for the public health worker to gather information from the patient. However, the public health worker should keep in mind that as patients first learn of their new TB diagnosis, they may not be ready to give or receive detailed information. The patient may be overwhelmed and may be experiencing fear over the diagnosis of TB disease. The patient may still be very sick and may be unable or unwilling to participate fully in a patient interview. The public health worker should be aware of these factors that can affect the initial patient interview and should plan accordingly to educate patients and schedule follow-up interviews.



.....  
Remember that the initial interview is often the patient's first encounter with the public health system and so is very important.

.....  
The initial interview marks the beginning of the public health worker's relationship with a patient and therefore requires a certain amount of planning.

The public health worker's relationship with the patient will develop over time as treatment progresses and the patient's health improves; however, the initial interview is often the patient's first encounter with the public health system and so it is very important. If possible, the public health worker should consult with the patient's physician and staff nurse, the infection control practitioner, and the social worker prior to meeting with the patient so that he or she can prepare for the interview with adequate background information.

The initial interview marks the beginning of the public health worker's relationship with a patient and therefore requires a certain amount of planning. For the initial interview to be successful, a public health worker should

- # Have a clear understanding of the interview's objectives
- # Plan the interview so that each objective is given adequate time
- # Listen to the patient's concerns about TB and its treatment
- # Share information freely with the patient

The public health worker should prepare for the interview by determining if an interpreter will be needed. In addition, the public health worker should be familiar with interviewing techniques such as asking open-ended questions (see Module 6, Contact Investigations for Tuberculosis and Module 9, Patient Adherence to Tuberculosis Treatment).



.....

It is very important to establish a trusting relationship with the patient.

.....

.....

If a patient trusts or has confidence in his or her public health worker, he or she is more likely to be willing and able to follow instructions and advice and to adhere to a regimen.

.....

### **Establishing a Trusting Relationship**

It is very important to establish a trusting relationship with the patient. Trust implies a firm reliance by the patient on the integrity, ability, and character of the public health worker. If a patient trusts or has confidence in his or her public health worker, he or she is more likely to be willing and able to follow instructions and advice and to adhere to a regimen. The initial interview is a good time to begin to develop trust. In all likelihood the establishment of a true trusting relationship between the public health worker and the patient will develop over time through various interactions that will test the relationship. However, the foundation from which a trusting relationship can be established begins at the initial interview.

As the public health worker interviews the patient, the patient may divulge sensitive information about lifestyle choices and illegal behaviors. It is extremely important that the health care worker safeguard this information and assure the patient that this information will not be shared with authorities or others. For additional information on how to develop a trusting relationship with the patient, as well as possible consequences for failing to do so, see Module 6, Contact Investigations for Tuberculosis and Module 7, Confidentiality in Tuberculosis Control.



. . . . .  
The purpose of the interview is to exchange information that will help the patient complete a TB treatment regimen and to identify the patient's contacts.  
. . . . .

When the public health worker first meets a patient, he or she should introduce himself or herself by name and title, clearly stating his or her role with the TB program, and the purpose of the interview: to exchange information that will help the patient complete a TB treatment regimen and to identify the patient's contacts.

Because it is important to make the patient as comfortable as possible, the public health worker should ensure that the interview takes place under conditions that encourage effective communication. These conditions include

- # Arranging for privacy and maintaining confidentiality and assuring the patient all sensitive information will be kept private
- # Creating an environment relatively free of distractions and interruptions (for example, after physician or nursing rounds)
- # Listening attentively and respectfully to the patient (for example, sit down near the patient and use open, relaxed body language)
- # Being objective and nonjudgmental (for example, be patient, not accusatory, and never show frustration)



.....  
The public health worker should maintain control of the interview, keeping the interview objectives in mind.  
.....

Once the public health worker has introduced himself or herself, he or she should maintain control of the interview, keeping the interview objectives in mind. If the public health worker loses control and is too easily distracted (for example, by complaints about hospital food or small talk about current events), this sends a strong, negative message to the patient that can result in subsequent problems, including nonadherence. Effectively directing the interview is best accomplished by

- # Demonstrating self-confidence
- # Persistence in meeting the interview objectives
- # Good faith in wanting to help the patient solve potential problems

.....  
Different patients may require different approaches, so the public health worker's plan should be flexible whenever possible.  
.....

Different patients may require different approaches, so the public health worker's plan should be flexible whenever possible. For example, some patients will prefer a very direct and efficient interview; others may have questions or wish to share some concerns with the public health worker.

.....  
The public health worker will need to pause from time to time to ask the patient if he or she has questions or concerns.  
.....

The public health worker will need to pause from time to time to ask the patient if he or she has questions or is concerned about specific aspects of the contact investigation or **treatment plan**, which is a written plan detailing the medical regimen as ordered by the physician, including periodic monitoring for adverse reactions and other follow-up care. When the public health worker asks for input from the patient, he or she should be sure to wait long enough so that the patient knows that the worker sincerely wants a response; if the public health worker pauses only for a few seconds, the patient may sense that the worker is rushed and may not be completely open with the public health worker.



.....  
The public health worker should gather or confirm locating information for the patient after discharge.  
.....

**Patient Addresses and Contacts**

The public health worker should gather or confirm locating information for the patient after discharge. This is an essential component of the initial interview and should never be left out. After the interview, the public health worker should make a telephone call or field visit to verify locating information. In some instances, a patient may have no permanent residence, or may be unable or unwilling to return to a former residence; undocumented immigrants may be particularly unwilling to leave a residential address. If this is the case, ask the patient where he or she can be found during the day or if there is anyone who will always know his or her location. This is crucial so that a home visit can be made after the patient’s discharge or if the patient leaves the facility against medical advice. (In addition, the public health worker should use the initial interview to obtain missing information or clarify contradictory information from the medical record.)

.....  
A contact investigation should be done whenever a person is found to have or is suspected of having infectious pulmonary or laryngeal TB disease.  
.....

A contact investigation should be done whenever a person is found to have or is suspected of having infectious pulmonary or laryngeal TB disease (e.g., with sputum smears that are positive for AFB) (see Module 6, Contact Investigations for Tuberculosis). The purpose of a contact investigation is to

- # Identify people exposed to someone with infectious TB disease
- # Screen these people for TB infection and TB disease
- # Provide treatment for infection or disease as needed



.....  
 The contact investigation should be started during the initial patient interview.  
 .....

The contact investigation should be started during the initial patient interview, with three main objectives in mind:

- # Find out more about the patient’s **symptoms** to help determine the period of infectiousness
- # Find out **places** where the patient spent time while he or she was infectious
- # Identify the patient’s **contacts**, get the contacts’ addresses or other locating information (if available), and find out how long the contacts were exposed to the patient while he or she was infectious

.....  
 The three main objectives of the patient interview are to find out about symptoms, places, and contacts.  
 .....

See Module 6, Contact Investigations for Tuberculosis for more information on gathering information on symptoms, places, and contacts.

**Patient Assessment**

.....  
 The public health worker will need to learn as much as possible about his or her patient in order to assess potential adherence problems.  
 .....

The public health worker will need to learn as much as possible about his or her patient in order to assess potential adherence problems. The public health worker will need to learn about the patient’s

- # Medical history and current health problems
- # Ethnic background and primary language(s)
- # Knowledge and beliefs about TB
- # Ability to take responsibility for following their TB treatment plan or DOT arrangement
- # Resources (for example, family, other social support, finances, interpretive services)
- # Barriers to treatment (for example, mental or psychological problems, substance abuse, homelessness)
- # History of adherence to previous TB regimens or other medication regimens





.....  
Because TB treatment often begins abruptly, patients may have difficulties changing their behaviors.  
.....

Doing a patient assessment means talking to a patient to get information on the points listed above, with a particular emphasis on identifying the problems most important to the patient as treatment begins. Because TB treatment often begins abruptly, patients may have difficulties changing their behaviors as expected. Some patients may be lost to follow-up care unless special efforts are made to identify their needs. If the patient is too sick and family members are present, the public health worker should discuss the need for adherence to treatment and possible barriers with them.

.....  
The public health worker should ask what the patient believes about TB disease and treatment.  
.....

When the public health worker begins to work with a patient, it is important to ask what the patient believes about TB disease and treatment. If the patient does not understand the importance of finishing treatment, adherence will be very difficult. Therefore, the public health worker should identify differences between what he or she believes and what the patient believes early in treatment. That way, the public health worker will have time to correct the patient's misinformation and provide the necessary education.

.....  
If the patient does not understand the importance of finishing treatment, adherence will be very difficult.  
.....

During the public health worker's initial interview, he or she will begin to identify areas in which the patient needs education and will evaluate the patient's ability to adhere to a treatment regimen. For example, asking a patient what problems the illness has caused him or her can help the public health worker assess the strength of family and social support; potential job-related problems; and, to some extent, the problem-solving skills of the patient (see Module 9, Patient Adherence to Tuberculosis Treatment).



.....  
Knowing and respecting the patient's views will improve the public health worker's relationship with the patient and make the patient more likely to be adherent.

.....

When a patient's ideas are different from the public health worker's, the public health worker should accept that the patient has different views, and then ensure that the patient has accurate TB knowledge. The public health worker can make it clear that even if he or she does not share the patient's views, the public health worker respects them. Knowing and respecting the patient's views will improve the public health worker's relationship with the patient and make the patient more likely to be adherent.

.....  
The public health worker should document the results of this interview, including educational topics covered, and note any information that is missing or pending.

.....

In summary, a planned initial interview is very important to the successful management of TB patients. The public health worker should document the results of this interview, including educational topics covered, and note any information that is missing or pending. Subsequent interviews can be used to gather this information and provide further education and counseling to the patient.



**Study Questions 8.17-8.19**

- 8.17. What should the initial patient interview be used to do? Name four primary objectives.**
- 8.18. List four things that are necessary for a successful initial interview between the public health worker and the patient.**
- 8.19. Under what conditions should the initial interview take place? List four conditions that encourage effective communication.**

Answers on pages 107-108.



**Study Questions 8.20-8.21**

**8.20. List the three main objectives of a contact investigation that should be kept in mind during the initial patient interview.**

**8.21. List seven things that the public health worker will need to learn about his or her patient in order to assess potential adherence problems.**

Answers on page 109.



### **Case Study 8.5**

**Ms. Bouzide, a 34-year-old mother of four children, has been hospitalized for 3 days for TB disease. She had a severe coughing attack and collapsed on the street before being brought in by an ambulance service. Ms. Bouzide is now well enough for an initial interview; her husband will also be present. You have gathered information from the medical record before the interview and have discussed Ms. Bouzide's case with a social worker. Here is a brief summary of the background information:**

**Smear results: 3+ on 5/26/99**

**Culture results: pending**

**Radiograph report: cavitary lesions in right upper lobe**

**Family history: grandmother died of TB in 1978**

**Social history: immigrated from Morocco in 1997**

**Employment: odd jobs (laundry, tailoring, child care)**

**# How can you plan the interview so that you establish a good relationship with the patient?**

**# What additional information will you need from Ms. Bouzide to begin a contact investigation?**

Answers on pages 118-120.



### Case Study 8.6

**Mr. Donald is a 26-year-old homeless man who is unemployed. He is also a heavy drinker and uses crack. On admission to the city hospital, Mr. Donald had been complaining of a cough and night sweats. His temperature was 101E F, and he had lost a lot of weight. He was started on TB medications on the day of admission. In the daily progress notes over the 2 weeks following admission, it was noted that the patient's cough and night sweats subsided, his temperature came down to 98.6E F, and his weight increased by 5 pounds.**

**Mr. Donald's illness was reported as a suspected TB case by the infection control practitioner. Now that he is feeling better, he keeps threatening to walk out of the hospital to go back to the streets. You need to meet Mr. Donald for an initial patient interview.**

**# What will your objectives be during that interview?**

**# How will you conduct an assessment of Mr. Donald to determine potential adherence?**

Answers on pages 120-122.



## Plan for Follow-up Care

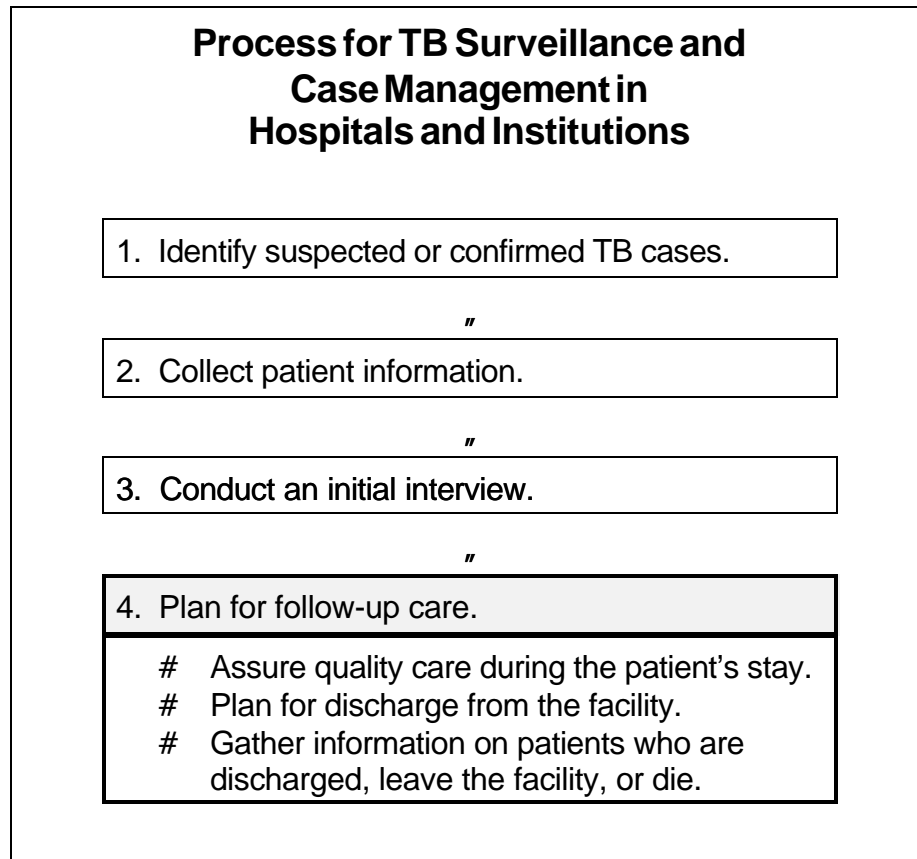


Figure 8.12 Process for TB surveillance and case management.

.....  
 Every suspected or confirmed TB case should receive a complete diagnostic evaluation, an adequate regimen, and appropriate measures to promote adherence.  
 .....

### Quality Assurance

It is the responsibility of the TB program to ensure that every suspected or confirmed TB case that is reported receives

- # A **complete diagnostic evaluation**
- # An **adequate regimen** of TB medications
- # Appropriate measures to promote **adherence** and completion of therapy



.....  
Public health workers should collaborate with a facility's staff to monitor the patient's care throughout the hospital or institutional stay.  
.....

Public health workers assigned to hospitals and institutions can play a key role in carrying out these responsibilities; however, practices will vary from facility to facility and often the infection control practitioner, hospital epidemiologist, or employee health department will be primarily responsible for quality assurance. Public health workers should collaborate with a facility's staff to monitor the patient's care throughout the hospital or institutional stay. This means assessing the patient's care periodically, after a case has been reported and the initial patient interview has taken place, and reporting any problems to the TB program.

**Complete Diagnostic Evaluation.** A complete diagnostic evaluation includes

- # A medical history
- # A physical examination
- # A Mantoux tuberculin skin test
- # A chest radiograph
- # Any appropriate bacteriologic or histologic examinations (for example, AFB smear and culture)

This evaluation provides valuable information not only for the medical diagnosis of TB, but also for assessing the patient's degree of infectiousness and the possibility of disease caused by drug-resistant organisms. If the medical history reveals a history of TB disease, the public health worker should gather additional information from the TB program and from the former provider, if possible; this information should be supplied to the patient's current provider.





Public health workers should monitor patients' laboratory results throughout their stay in the facility to ensure that cases are appropriately managed.

Persons suspected of having pulmonary or laryngeal TB should have at least three sputum specimens examined by smear and culture. In addition, follow-up bacteriologic examinations are important for assessing the patient's infectiousness and response to therapy. Public health workers should therefore monitor patients' laboratory results throughout their stay in the facility to ensure that cases are appropriately managed. To detect any drug resistance as soon as possible, the initial *M. tuberculosis* isolate should always be tested for its drug susceptibility pattern.

Regimens for the treatment of TB must contain multiple drugs to which the organisms are susceptible.

**Adequate Regimen.** Regimens for the treatment of TB must contain multiple drugs to which the organisms are susceptible. Therefore, the public health worker should help ensure appropriate care by reporting the following problems to a supervisor:

- # The use of a non-standard regimen to treat TB disease
- # The use of a three-drug regimen instead of four drugs, in an area with high levels of drug resistance (a prevalence of INH-resistant TB of 4% or greater) or in treating a patient at high risk for drug resistance
- # The addition of a single drug to a failing regimen

These problems can all lead to treatment failure and the emergence of drug-resistant tubercle bacilli. The public health worker needs to be familiar with the standard TB treatment regimens and with local levels of drug resistance (see Module 5, Treatment of Tuberculosis Infection and Disease, and the latest American Thoracic Society/CDC treatment recommendations for standard regimens).



.....  
Throughout the stay in the facility, the patient's adherence with the treatment regimen should be monitored and the patient should be educated about TB disease.  
.....

**Measures to Promote Adherence.** As mentioned previously, the public health worker will begin an assessment of the patient's potential adherence during the initial interview. Throughout the stay in the facility, the patient's adherence with the treatment regimen should be monitored and the patient should be educated about TB disease. If problems arise while the patient is in the facility that create barriers to the patient's adherence (for example, moves within the facility, staffing problems), the public health worker should ensure that adherence barriers are promptly addressed and resolved.

.....  
The public health worker's first priority should be the prompt identification and appropriate management of active TB cases.  
.....

In addition to the duties mentioned above, public health workers assigned to hospitals and institutions may become involved in

- # Infection-control activities within the facility, including ongoing tuberculin skin-testing programs
- # Contact investigations within the facility
- # The administration and monitoring of treatment for LTBI for patients or employees
- # Data collection for epidemiological research

It is important to keep in mind that the public health worker's first priority should be the prompt identification and appropriate management of active TB cases.



.....  
Discharge planning is the preparation of a detailed plan for comprehensive care of a hospitalized or institutionalized patient after that patient's discharge.

.....

.....  
Discharge planning is necessary to ensure continuity of treatment and quality care.

.....

### Discharge Planning

Discharge planning is the preparation of a detailed plan for comprehensive care of a hospitalized or institutionalized patient after that patient's discharge.

For patients who leave a hospital or institution, **discharge planning** is necessary to ensure continuity of treatment and quality care. Discharge planning for TB patients should begin soon after a suspected or confirmed TB case is reported. It is usually a team effort, led by a nurse or a facility's discharge planner. In some cases, a case manager assigned by the public health department may be in charge of planning for a patient's discharge. Team members often include at least two or more of the following:

- # The discharge planner or case manager
- # Nurses or therapists involved in the patient's care
- # A social worker
- # The patient's physician
- # Expert consultants, if required
- # DOT outreach worker

An institution-based public health worker can also provide input and share responsibility for ensuring that the TB patient is appropriately managed after discharge.



.....  
The adherence plan addresses barriers to adherence and details the method chosen to deliver treatment and monitor adherence for that specific patient.

The discharge planning team should meet while the patient is in the facility to review the patient’s treatment plan and develop an **adherence plan**. An adherence plan is a written plan that is based on the patient’s understanding and acceptance of the TB diagnosis, that addresses barriers to adherence, and that details the method chosen to deliver treatment and monitor adherence for that specific patient. If possible, the patient should be included in this meeting to aid in decision-making. The treatment plan includes the details of the medical regimen as ordered by the physician, as well as plans for monitoring for adverse reactions and other follow-up care.

.....  
Adherence often improves if the patient, the family (if possible), and the public health worker develop an agreement that spells out the adherence plan and states the responsibilities of the patient and of his or her providers.

The adherence plan should be developed with input from the patient and from other key staff and health care providers. Adherence often improves if the patient, the family (if possible), and the public health worker develop an agreement that spells out the adherence plan and states the responsibilities of the patient and of his or her providers (see Module 9, Patient Adherence to Tuberculosis Treatment, for further information).

.....  
DOT is strongly recommended for potentially infectious patients with significant adherence problems.

The discharge team may identify problems other than TB that patients are encountering. These problems may include other medical conditions, inadequate housing, poverty, family dysfunction, physical abuse, child abuse and neglect, or substance abuse. Unless these problems are addressed, patients may have serious barriers that prevent them from adhering to the prescribed regimen and keeping clinic appointments. DOT is **strongly** recommended for potentially infectious patients with significant adherence problems; in some areas, DOT is the standard of care.



.....  
When patients have serious problems, the discharge team has an opportunity to help them by providing appropriate referrals for support and assistance.  
.....

When patients have serious problems, the discharge team has an opportunity to help them by providing appropriate referrals for support and assistance. By helping patients with these other difficulties, providers and public health workers are also helping patients successfully complete TB therapy. Table 8.6 presents some examples of the service providers the public health worker may want to contact for eligible patients. Relationships with such providers can often be improved by means of formal referral agreements and educational sessions for staff about TB, including information on services the TB program has to offer.

**Table 8.6**  
**Service Providers with Benefits for Eligible TB Patients**

Service Provider	Examples of Benefits Available to Qualified Persons
Public health nursing services	Integrated home health care Public health clinic services Patient incentives
HIV/AIDS services	HIV testing, counseling, and treatment programs Patient support groups Meal programs
Housing services	Temporary shelter Location of available housing options
Social services	Food stamps Medicaid Unemployment or disability support
Emergency assistance programs	Shelter for battered women Placements for victims of child abuse
Substance abuse treatment programs	Detoxification programs Methadone treatment programs



In some cases, the patient and his or her family may already be receiving visits from social workers or public health nurses for other conditions or problems; if this is the case, the discharge team should get their input whenever possible. By helping to coordinate care provided to a single patient, the public health worker can often improve patient adherence and maximize the use of public health resources. However, confidentiality is an important issue in working with other agencies, and must not be compromised.

.....  
An appointment for DOT or for continued monitoring should be made at a location that is convenient (and preferably, familiar) to the patient.

.....

An appointment for DOT or for continued monitoring should be made at a location that is convenient (and preferably, familiar) to the patient. Whenever possible, the provider for the patient's follow-up care should come to the hospital or institution to meet the patient and explain the program that will be followed. The discharge planner or case worker should notify the provider of the date of discharge when it becomes known and of any changes in the treatment plan or adherence plan.

.....  
The public health worker is responsible for conveying relevant information on discharged patients to the TB program.

.....

The public health worker is responsible for conveying relevant information on discharged patients to the TB program. This information is very important for co-workers assigned to the case who will provide follow-up care in the community.



.....  
When a patient is no longer in the facility, the patient's medical record is sent to the medical records department.  
.....

.....  
The public health worker should become familiar with the record request procedures used in any facility in which he or she needs to work.  
.....

.....  
The discharge summary contains the patient's discharge diagnosis and often includes a plan for follow-up care.  
.....

### Patients No Longer in the Facility

The public health worker may need to review the medical record of a patient who has been discharged, has left the facility against medical advice, or has died. In addition, it is sometimes important to review the medical record from a patient's prior hospitalization or stay in an institution. When a patient is no longer in the facility, the patient's medical record is sent to the medical records department. To access these records, the public health worker will usually complete a medical record request form, providing the patient's name and either a medical record number or the patient's date of birth. Each facility has a specific procedure for requesting patient records; the public health worker should become familiar with the procedure used in the facility or facilities in which he or she works.

The medical records of patients who have been discharged often will not have clearly labeled sections, even though they will still be organized in the same manner as in-patient records. If the patient has been discharged, a **discharge summary** may be included in the medical record; this is a document written by the patient's physician that contains a brief summary of all important information from the entire hospitalization or stay in the institution. The discharge summary contains the patient's discharge diagnosis and often includes a plan for follow-up care. Although it is usually a good place to start, the discharge summary should not be used in place of a thorough record review.



.....  
If a patient is discharged while still infectious, it is especially important that the patient, his or her providers, and household members know this and be able to act accordingly.  
.....

Many patients are discharged before final culture and susceptibility results are known; the public health worker may need to find the patient’s laboratory results and forward them to the current provider. If a patient is discharged while still infectious (for example, with positive AFB sputum smears), it is especially important that the patient, his or her providers, and household members know this and be able to act accordingly. Household members who have already been exposed do not usually need to take special precautions, but unexposed persons — especially HIV-infected persons and children — should not be in contact with a patient who is still infectious.

Other information included in the medical record can help to

- # Locate a patient who has been lost to follow-up care
- # Identify a patient’s next of kin
- # Locate information about contacts

Finally, the medical record may contain information about the patient’s next scheduled clinic appointment or provider in the community.

If a patient has died while in the facility, there will usually be a death report and a pathology report in the medical record. These reports should be reviewed along with the rest of the medical record for information relevant to the contact investigation.





If the patient is being seen in an **out-patient clinic** (a clinic that cares for non-hospitalized patients with a particular type of problem; for example, chest, infectious disease, AIDS, pediatric) associated with a hospital, the medical record may be found in the medical records department or in the clinic files, if an appointment date is near. If the medical record is in the out-patient clinic, the public health worker must request it from the clinic supervisor or a nurse, following the clinic's procedure for record requests.

.....  
HIV-infected patients will often be referred to an infectious disease clinic for follow-up care or prophylaxis against opportunistic infections after their discharge.  
.....

HIV-infected patients will often be referred to an infectious disease clinic for follow-up care or prophylaxis against opportunistic infections after their discharge. If this happens, a case manager is usually assigned to the patient. This person can often be helpful in arranging follow-up care for TB disease and providing social services, such as housing, that may be available through AIDS- or HIV-related programs.

**Inter-jurisdictional Referrals**

Some patients who are in a hospital or another institution may actually reside in a different health jurisdiction other than the one in which the hospital or institution is located. Likewise, some patients may move to another jurisdiction upon discharge from the hospital or institution or at some other point during their treatment. For example, a TB patient who is paroled or released from a correctional facility may actually reside in a health jurisdiction other than the one where the correctional facility is located. Similarly, seasonal migrant farm workers may move between health jurisdictions often.



. . . . .  
The public health worker needs to be familiar with the guidelines and case referral processes in their health jurisdiction in order to transfer information on TB patients who move as well as facilitate follow-up to ensure TB patients' continuity of care.  
. . . . .

A patient may move to a health jurisdiction within the same state or to another state. The public health worker needs to be familiar with the guidelines and case referral processes in their health jurisdiction in order to transfer information on TB patients who move, as well as facilitate follow-up to ensure TB patients' continuity of care. The end goal is completion of therapy for all TB patients.

When a patient leaves a health jurisdiction before completing TB therapy, patient information should be sent to the patient's destination health jurisdiction. The following procedures should be followed:

- # Patients who are on antituberculosis treatment or treatment for LTBI should be given records they can take with them to indicate their current treatment and diagnostic status. Special care should be taken to instruct such persons on how to take their medications and how and where to get additional medication and medical care at the destination sites.
- # All relevant medical information should be forwarded to the destination jurisdiction. Some jurisdictions use a standard form when referring patients between health jurisdictions. See Figure 8.13 as an example of a referral form.
- # The state health department TB control officer should be contacted and apprised of the need for follow-up and the next possible destination of the patient.
- # Although sharing necessary information between health departments is encouraged to ensure continuity of care, as well as protect the public, measures should be taken to ensure confidentiality.



- # All information received on the TB patient, including TB laboratory reports, after the TB patient departs for another area should be immediately telephoned, faxed, or expeditiously mailed to the receiving jurisdiction following procedures to maintain patient confidentiality.
- # Out-of-state communications regarding TB care should be routed through state health departments to ensure that the information is transmitted and that necessary follow-up is initiated.
- # The referring jurisdiction should follow up and maintain communication as needed until the patient is located in the destination jurisdiction.

.....  
 Receiving jurisdictions also have responsibilities to ensure the continuity of care for TB patients, as well as the accountability of the cases.

.....  
 .....  
 The receiving jurisdiction should maintain communication with the referring jurisdiction to ensure continuity of care.

.....

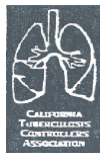
Receiving jurisdictions also have responsibilities to ensure the continuity of care for TB patients, as well as the accountability of the cases. Public health workers in receiving jurisdictions should be prepared to receive the TB patient from the referring jurisdiction and resume patient care.

If a forwarding address is provided by the referring jurisdiction, the receiving jurisdiction should try to verify and visit the forwarding address. The receiving jurisdiction should make every effort to locate referred TB patients. The receiving jurisdiction should maintain communication with the referring jurisdiction to ensure continuity of care. If the patient cannot be located, and reasonable attempts to locate the patient have been made, the receiving jurisdiction should notify the referring jurisdiction of their inability to locate the patient. The receiving and referring jurisdictions should work with the state TB controllers in their area to inform them of the situation and discuss other options for locating the patient.



## CALIFORNIA CONFIDENTIAL TB REFERRAL FORM

TO:



FROM:

*Our Department has received information that the following client resides in your health jurisdiction*

<input type="checkbox"/> TB Suspect	<input type="checkbox"/> TB Case	<input type="checkbox"/> Contact	<input type="checkbox"/> Source Case Finding	<input type="checkbox"/> Converter
<input type="checkbox"/> Reactor	<input type="checkbox"/> Other: _____		<input type="checkbox"/> Initial Report	<input type="checkbox"/> Update

Name (Last, First, M.I.)		AKA	Age/DOB	Social Security #	Sex
Head of Household (Name)		Language	Bilingual? Yes / No	Race/Ethnicity	Occupation
Present Address (P.O. Box, General Delivery, or Star route, give locating directions)				Phone	
Previous Address				Booking #	Cal. Dept. Correction #
Physical Description (Height, Weight, Hair Color & Style), Scars, Tattoos, or Glasses, etc.				RVCT Sent to State: No ___ Yes, date ___	
				Calif. RVCT TB Case#	

**CLINICAL INFORMATION for:**

1.  Person being referred      2.  Index case for contact/source case finding

CXR		BACTERIOLOGY			
Impression		Specimen Date	Specimen Type	Results	
				Smear	Culture

Skin Test Results		Symptoms	Major Site of Disease	Sensitive to All Drugs
Date	Results (mm)	Date onset: _____ <input type="checkbox"/> Cough <input type="checkbox"/> Productive Sputum <input type="checkbox"/> Other: _____	<input type="checkbox"/> Pulmonary <input type="checkbox"/> Other: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, attach lab report(s).

**CHEMOTHERAPY:**

Drug/Dose	Dated Started	Date D'Ced	# Given	ADHERENCE
Isoniazid				<input type="checkbox"/> Yes
Rifampin				<input type="checkbox"/> No, Explain _____
Ethambutol				
PZA				DOT
Other				<input type="checkbox"/> No
Other				<input type="checkbox"/> Yes (Daily/Biweekly)

Return Disposition Requested:      \_\_\_ No      \_\_\_ Yes

<p><b>DISPOSITION</b></p> <p>___ Located</p> <p>___ Not Infected      ___ Under care</p> <p>___ Previously treated      ___ Refused follow-up</p> <p>___ Moved (see comments)      ___ Died, date: ___/___/___</p> <p>___ Unable to locate</p>	<p><b>COMMENTS:</b></p> <p>Completed by: _____</p> <p>Title: _____</p> <p>Tel.#: _____ Date: ___/___/___</p>
--	--

**CONTACT/SOURCE CASE FINDING ONLY:**

Name of Index Case \_\_\_\_\_  
RVCT# of Index Case (If applicable) \_\_\_\_\_

Relationship to Index Case \_\_\_\_\_

Evaluate the following household/close contacts:

Name	DOB/Age

**RISK FACTORS:**

Check any of the following risk factors if present:

Index case	Person being referred	
___	___	Immunosuppressed
___	___	Injecting drug user
___	___	Abnormal chest x-ray c/w old TB
___	___	Foreign born from high prevalence country
___	___	Under 6 years of age
___	___	Other medical risk factors (Specify): _____

**RECOMMENDATIONS:**

\_\_\_ Skin test      \_\_\_ Start INH  
\_\_\_ Chest x-ray      \_\_\_ Continue INH

Other \_\_\_\_\_

**PROVIDER:**

Name: \_\_\_\_\_  
Tel.#: \_\_\_\_\_

REMARKS:       See Attached

COMPLETED BY: \_\_\_\_\_  
Title: \_\_\_\_\_  
Tel.#: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

Figure 8.13 Sample referral form used by California. California Department of Health Services, Division of Communicable Disease Control, Tuberculosis Branch. *California Inter-jurisdiction Referral Desk Protocol*; 1999.



**Study Questions 8.22-8.23**

**8.22. Describe the responsibility of the TB program to every suspected or confirmed TB case.**

**8.23. Explain the purpose of discharge planning and briefly describe the public health worker's role in discharge planning for a TB patient.**

Answers on pages 110-111.



**Study Questions 8.24-8.25**

**8.24. Explain how to find information on a patient who has been discharged, left the facility, or died.**

**8.25. Explain the procedures for sending patient information from one health jurisdiction to another.**

Answers on pages 111-112.



### **Case Study 8.7**

**You are the public health worker assigned to the Buena Vista residential home for the elderly. There are currently two TB patients in the facility who are taking TB medications. They have been reported to the TB program and will remain in the facility for the duration of their TB treatment.**

**# What are your concerns for ensuring the quality of their case management?**

**While reviewing the patients' medical records, you find that drug susceptibility testing has not been done on either patient's isolate. Both patients are currently on a standard, three-drug regimen that is appropriate for your local area. However, you are somewhat disturbed to find out that one patient, Mr. Sichler, was homeless for a time and wandered from shelter to shelter in a nearby city (with high drug resistance rates) before coming to Buena Vista.**

**# What should you do?**

Answers on pages 123-124.



### Case Study 8.8

**You have just been assigned to work in the state prison, which houses several hundred prisoners and usually has three to six TB cases per year. Currently, two prisoners are taking TB medication and seven are on regimens for the treatment for LTBI. Before you were assigned to the prison, the standard procedure when prisoners with TB disease were released was to notify the health department. The health department would make an appointment for the patient and, if the patient did not come, send a reminder card to the patient's address prior to incarceration (supplied by the prison administration). The treatment completion rate for these cases has been very low.**

**# One of the prisoners with TB disease is near the end of his sentence and has a hearing coming up in a few days. What can you do to plan for his release?**

**# What information will you need from this patient during your initial interview that will help discharge planning?**

Answers on pages 124-126.





**Case Study 8.9**

**You are a health care worker at the Gryson County Health Department. You have been working closely with Juan Garcia, a 35-year-old Hispanic agricultural worker. Mr. Garcia was diagnosed with TB about 2 months ago. You have been giving DOT to Mr. Garcia at a local farm where he picks oranges. Orange season is coming to an end and you realize that Mr. Garcia will soon be heading North to look for more work. You have spoken to him about where he will be going next. He tells you that he is going to a farm in the next state. He is not exactly sure where it is, but he thinks he remembers the farm is located near a town called Jasper.**

**# What steps will you take before Mr. Garcia leaves to ensure the continuity of care?**

Answers on pages 126-127.



## SUMMARY

The three primary goals of TB prevention and control are

- # To identify and treat persons who have active TB disease
- # To identify and evaluate exposed contacts, offering appropriate treatment as indicated
- # To test populations at high risk for TB infection and disease to detect infected persons, and provide treatment for latent TB infection (LTBI) to prevent progression to active TB

To accomplish these goals, public health workers may be assigned to make routine visits to hospitals or other institutional settings to gather information and interview TB patients and plan for patients' follow-up care. The following steps are included in the basic process for conducting TB surveillance and providing case management in hospitals or institutions:

### **Process for TB Surveillance and Case Management in Hospitals and Institutions**

1. Identify suspected or confirmed TB cases.

"

2. Collect patient information.

"

3. Conduct an initial interview.

"

4. Plan for follow-up care.



Because providing complete treatment to TB patients requires long-term follow-up, communication is essential both with the patients and with the health care workers who care for them. A lapse in communication can have serious consequences. For example, poor communication can cause a patient to receive incomplete or inadequate treatment and therefore remain ill or infectious. Incomplete treatment is a serious failure for TB prevention and control because

- # Additional persons may be exposed to TB
- # Patients may be rehospitalized with serious complications of TB
- # Patients may develop multidrug-resistant TB

Effective communication, good surveillance procedures, and efficient case management can help prevent failures such as incomplete or inadequate treatment.

The key staff who collaborate with TB public health workers vary from hospital to hospital and from institution to institution. Generally, one person has the lead responsibility for TB surveillance; it is important to identify this person and collaborate closely with him or her for surveillance activities. As liaisons with the TB program, public health workers support hospital or institution staff by

- # Providing important information on a patient's TB history
- # Providing information on services available through the TB program
- # Supplying educational materials for patients and hospital or institution staff
- # Helping to plan for follow-up care for TB patients upon discharge

Public health workers assigned to hospitals and institutions support the TB program by conducting active case finding, assisting with contact investigations, and monitoring the progress of TB patients in the facility. In addition, the public health worker can help effectively transfer the care of a patient from a hospital or institution to a provider in the community.

State and local health departments should form close working relationships with correctional facility officials. Health departments can assist correctional facilities in formulating, implementing, and evaluating essential TB control activities.



## 1. Identify suspected or confirmed TB cases

The two basic methods for identifying suspected or confirmed TB cases are

- # Routine case reporting
- # Active case finding

Routine case reporting is the required reporting of suspected or confirmed TB cases to a public health authority. In routine case reporting, physicians and other persons (for example, infection control practitioners, pharmacists, laboratory staff) submit reports of suspected or confirmed TB cases as they are detected to a public health authority that collects and analyzes the information. In active case finding, the TB program identifies unreported cases of disease by actively searching for unreported TB cases through, for example, laboratory and pharmacy audits; active case finding can be designed and implemented in several ways, depending on local needs and practices.

Within a hospital or institution, public health workers can conduct active case finding by collaborating closely with the infection control practitioner and monitoring the use of negative-pressure isolation rooms that may be used to isolate patients with suspected TB disease.

In addition to these activities, public health workers may make routine visits to the pharmacies and to the mycobacteriology and pathology laboratories used by the facilities to which they are assigned for TB surveillance.

## 2. Collect patient information

It is important to collect information on reported TB cases in order to

- # Complete all necessary forms for reporting requirements, in accordance with local laws and regulations
- # Determine the need for and scope of a contact investigation
- # Be alerted to the presence of drug resistance or potential adherence problems
- # Gather background information needed to conduct the initial interview
- # Plan for and arrange the patient's care both during and after hospitalization or stay in an institution



For each reported TB case, the public health worker should review the patient's medical record and summarize information that is pertinent to TB treatment. The medical record contains a wealth of information, but finding specific information can be difficult unless the public health worker knows where to look.

### 3. Conduct an initial interview

The initial patient interview is very important and should be used to

- # Establish the foundation for a good relationship with the patient based on mutual trust and understanding
- # Confirm what the patient's address will be after discharge and gather information on contacts who may have been infected with *M. tuberculosis*
- # Begin an assessment of the patient's knowledge, feelings, and beliefs about TB
- # Discuss the importance of adherence to the TB treatment regimen

### 4. Plan for follow-up care

It is the responsibility of the TB program to ensure that every suspected or confirmed TB case that is reported receives

- # A complete diagnostic evaluation
- # An adequate regimen of TB medications
- # Appropriate measures to promote adherence and completion of therapy

Discharge planning is the preparation of a detailed plan for comprehensive care of a hospitalized or institutionalized patient after that patient's discharge. For patients who leave a hospital or institution, discharge planning is necessary to ensure continuity of treatment and quality care. Discharge planning for TB patients should begin soon after a suspected or confirmed TB case is reported. It is usually a team effort, led by a nurse or a facility's discharge planner.

The discharge planning team should meet while the patient is in the facility to review the patient's treatment plan and develop an adherence plan. An adherence plan is a written plan that is based on the patient's understanding and acceptance of the TB diagnosis, that addresses barriers to adherence, and that details the method chosen to deliver treatment and monitor adherence for that specific patient.



## Process for TB Surveillance and Case Management in Hospitals and Institutions

### 1. Identify suspected or confirmed TB cases.

- # Know the current case definition and criteria for the classification of suspected and confirmed TB cases.
- # Gather information to verify cases reported routinely to the TB program.
- # Identify unreported cases through periodic active case finding in the laboratory and pharmacy.

"

### 2. Collect patient information.

- # Locate the patient.
- # Identify available information sources.
- # Review the medical record.

"

### 3. Conduct an initial interview.

- # Establish the basis for a trusting relationship.
- # Gather patient addresses and names of contacts.
- # Begin a patient assessment.

"

### 4. Plan for follow-up care.

- # Assure quality care during the patient's stay.
- # Plan for discharge from the facility.
- # Gather information on patients who are discharged, leave the facility, or die.



## Additional Reading

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American Thoracic Society/Centers for Disease Control. Control of tuberculosis in the United States. *Am Rev Resp Dis.* 1992;146(6):1623-1633.

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Centers for Disease Control and Prevention. Case definitions for infectious conditions under public health surveillance. *MMWR.* 1997;46(RR-10):40-41.

Centers for Disease Control and Prevention. Controlling TB in Correctional Facilities. U.S. Department of Health & Human Services, Public Health Service 1995.



## ANSWERS TO STUDY QUESTIONS

### 8.1. What are the three primary goals of TB prevention and control? (page 6)

The three primary goals of TB prevention and control are to

- # Identify and treat persons who have active TB disease
- # Identify and evaluate exposed contacts, offering appropriate treatment as indicated
- # Test populations at high risk for TB infection and disease to detect infected persons, and provide treatment for latent TB infection to prevent progression to active TB

To accomplish these goals, public health workers may be assigned to make routine visits to hospitals or other institutional settings (for example, nursing homes, correctional facilities, homeless shelters) to gather information and interview TB patients and plan for patients' follow-up care.

### 8.2. What are the four basic steps in the process for conducting TB surveillance and providing case management in hospitals and institutions? (page 7)

The four basic steps in the process for conducting TB surveillance and providing case management in hospitals or institutions are

1. Identify suspected or confirmed TB cases as soon as possible and report them to the TB control program
2. Collect information from the patient's medical record and other sources
3. Conduct an initial interview with every patient who has suspected or confirmed TB
4. Plan for each TB patient's follow-up care upon discharge from the hospital or institution

### 8.3. What are the serious consequences of a lapse in communication between patients and public health workers? (page 9)

A lapse in communication can have serious consequences. For example, poor communication can cause a patient to receive incomplete or inadequate treatment and therefore remain ill or infectious. Incomplete treatment is a serious failure for TB prevention and control because





- # Additional persons may be exposed to TB
- # Patients may be rehospitalized with serious complications of TB
- # Patients may develop multidrug-resistant TB

Effective communication, good surveillance procedures, and efficient case management can help prevent such serious consequences.

- 8.4. Below is a list of several hospital or institution staff with whom public health workers collaborate to conduct TB surveillance and case management. Match the key staff with the type of help they provide for conducting TB surveillance and case management.**  
(page 11)

<u>Key Staff</u>	<u>Help Available</u>
<b>A. Infection control practitioner</b>	<b><u>B</u> Mycobacteriology results, including smear and culture results</b>
<b>B. Laboratory staff</b>	<b><u>A</u> Reporting of TB cases; infectiousness and isolation procedures</b>
<b>C. Pharmacy staff</b>	<b><u>E</u> Patient contacts; outbreak information</b>
<b>D. Radiology staff</b>	<b><u>C</u> Prescriptions; purchase records</b>
<b>E. Hospital epidemiologists or employee health service staff</b>	<b><u>D</u> X-rays; current or baseline films</b>
<b>F. Discharge planners</b>	<b><u>G</u> Patient records from prior hospitalizations or other health care facility</b>
<b>G. Medical records staff</b>	<b><u>F</u> Patient locating information; plans for follow-up health care</b>

- 8.5. List four ways that public health workers support hospital or institutional personnel.**  
(page 12)

As liaisons with the TB program, public health workers support hospital or institutional staff by

- # Providing important information on a patient's TB history
- # Providing information on services available through the TB program
- # Supplying educational materials for patients and hospital or institutional staff
- # Helping to plan for follow-up care for TB patients upon discharge



In addition, public health workers assigned to hospitals and institutions support the TB program by conducting active case finding, assisting with contact investigations, and monitoring the progress of TB patients in the facility.

**8.6. What are some of the roles of the health department staff in the surveillance and case management of TB patients in correctional facilities? (page 17)**

Health department staff should help develop programs to train correctional facility staff to

- # Create TB control policies and procedures
- # Perform, read, and record tuberculin skin tests
- # Identify signs and symptoms of TB disease
- # Initiate and observe therapy
- # Monitor medication side effects
- # Collect diagnostic specimens
- # Educate inmates
- # Maintain record systems
- # Provide tracking and patient record system
- # Ensure released inmates complete therapy

**8.7. What can correctional facilities do to help ensure completion of therapy for inmates released or referred while being treated for TB infection or disease? (page 20)**

It may be necessary for correctional facility staff to request health departments and receiving facilities to formally notify them of the arrival of referred inmates on DOT who are released or transferred into the jurisdiction. This is a very important component of a good TB control program, since persons who are lost to follow-up are at high risk of never completing therapy, developing drug-resistant TB disease, and spreading TB to others. Inmates on DOT for LTBI who are released or transferred to other correctional facilities should also be referred for follow-up treatment.



**8.8. Name three things that will increase the suspicion of TB disease. (page 25)**

The presence of any of the following will increase the suspicion of TB disease:

- # A positive AFB smear
- # A positive tuberculin skin-test result
- # An abnormal, unstable chest radiograph

**8.9. Under the classification system for TB, give the class (0-5) for each type listed. (page 27)**

- 5 TB suspected**
- 3 Current TB disease**
- 1 Exposure to TB, no evidence of infection**
- 4 Previous TB disease (not current)**
- 0 No exposure to TB, not infected**
- 2 TB infection, no disease**

**8.10. Explain the two basic methods for identifying suspected or confirmed TB cases, and how they are put into practice. (page 28)**

The two basic methods for identifying suspected or confirmed TB cases are

- # Routine case reporting
- # Active case finding

Routine case reporting is the required reporting of suspected or confirmed TB cases to a public health authority. In routine case reporting, physicians and other persons (for example, infection control practitioners, pharmacists, laboratory staff) submit reports of suspected or confirmed TB cases, as they are detected, to a public health authority that collects and analyzes the information. In active case finding, the TB program identifies unreported cases of disease by actively searching for TB cases through, for example, laboratory and pharmacy audits; active case finding can be designed and implemented in several ways, depending on local needs and practices. In addition to the public health worker's responsibilities with cases routinely reported to the TB program, he or she may



also be doing active case finding to identify suspected or confirmed TB cases that have not been reported.

**8.11. How can public health workers use the information found in laboratories and pharmacies?** (page 30)

Public health workers may make routine visits to the pharmacies and to the mycobacteriology and pathology laboratories used by the facilities to which they are assigned for TB surveillance. With the collaboration of laboratory or pharmacy staff, public health workers can use the information found there to

- # Actively search for unreported TB cases
- # Confirm suspected TB cases once the medical evaluation is completed
- # Monitor the progress of reported TB patients (for example, through sputum and culture conversion or prescription refills)
- # Collect information on possible drug resistance and the adequacy of the current regimen

**8.12. What drugs are the focus of pharmacy surveillance?** (page 35)

In most areas of the country, the initial regimen for treating TB disease should include four first-line TB drugs: (page 35)

- # Isoniazid (INH)
- # Rifampin (RIF)
- # Pyrazinamide (PZA) and either
- # Ethambutol (EMB) or streptomycin (SM)

The focus of pharmacy surveillance is the identification of patients who are placed on two or more first-line TB drugs. The reason for specifying two or more drugs is because patients who may be on isoniazid (INH) therapy only are most likely on a regimen for treatment for LTBI and not a regimen for the treatment of TB disease.



**8.13. How should a public health worker locate a patient in a facility and where would he or she find patient addresses? (page 43)**

To locate a hospitalized patient or an institutional resident, the public health worker should call the central information number, if available, or check with the information desk receptionist. He or she should ask for the patient's current room number and ward or building location, as well as a phone number, if available. If necessary, the public health worker may need to go to the admissions or administrative office. Because patients are often transferred from ward to ward or from room to room, it is important to get current locating information. If a patient with suspected or confirmed TB disease has left the facility or has died, record any available patient addresses (for example, home address, next of kin, receiving facility) from the medical record and report this immediately to the TB program.

**8.14. Where can smear and culture results for a reported TB case be found? (page 44)**

A hospital's mycobacteriology laboratory has a logbook or database containing AFB smear results, culture results, and drug susceptibility patterns. The pathology laboratory will have the results of AFB smears done on any tissue specimens submitted. Although a computer database or the patient's medical record will also have much of this information, it may not be complete or accurate; laboratory reports are the definitive source for laboratory results and should always be reviewed or obtained.

**8.15. Describe seven main sections of the patient's medical record. (pages 48-49)**

The main sections of the patient's medical record are as follows:

- # **Identification data**, including the patient's name, address, social security number, date of birth, and other demographic information (may be a separate registration form)
- # **Progress notes**, in which all physicians and other specialists continuously record patient information during a patient's hospital stay; they are an important resource for information and may include nurses' notes and notes from other ancillary staff
- # **Nurses' notes**, in which the nurses who directly care for the patient continuously record information, including the patient's symptoms, medications given, and scheduled procedures or activities, and may be included in the progress notes section
- # **Physician's orders**, in which the physician(s) prescribes medications, orders laboratory tests or procedures (for example, bronchoscopy or gastric aspiration), and delivers other patient-care instructions to staff. Medication orders specify date, name of medication, dosage, and duration of treatment (in days or in number of doses)



- # **Medication record**, an information sheet on which the nurses record the date, time, and amount of prescribed medications given to the patient during hospitalization or care in a facility; may not be included in patient's medical record (for example, may be kept in a separate medication logbook)
- # **Laboratory results**, records presenting the results of every laboratory test that has been done on the patient, such as AFB smear examinations, cultures, and drug susceptibility tests performed in a laboratory
- # **Radiology reports**, reports summarizing all radiology procedures performed on the patient (for example, chest radiographs or CT scans)

**8.16. Why is it important to gather information on the patient's potential adherence?**  
(pages 56-57)

It is important to collect information on the patient's potential adherence in order to plan for and arrange the patient's care both during and after hospitalization or stay in an institution. Information about potential adherence problems may come from the patient's medical record, social worker, nursing staff and physicians, and family members or other visitors.

To help evaluate the patient's potential adherence to therapy, it is important to note pertinent social history. The public health worker should find out if the patient is foreign-born or speaks a language other than English; if so, the public health worker will need a translator for the patient interview and subsequent care. The public health worker should look for and note a history of residence in a congregate setting such as a prison, nursing home, hospital, or shelter. Also note any history of drug or alcohol abuse, homelessness, mental health problems, or previous nonadherence.

**8.17. What should the initial patient interview be used to do? Name four primary objectives.** (page 62)

The initial patient interview is very important and should be used to

- # Establish the foundation for a good relationship with the patient based on mutual trust and understanding
- # Confirm what the patient's address will be after discharge and gather information on contacts who may have been infected with *M. tuberculosis*



- # Begin an assessment of the patient's knowledge, feelings, and beliefs about TB
- # Discuss the importance of adherence to the TB treatment regimen

In addition, the initial interview is a good opportunity for the public health worker to

- # Get to know the patient
- # Educate the patient about TB
- # Look for factors that may affect the patient's adherence to treatment
- # Arrange a follow-up visit with the patient

**8.18. List four things that are necessary for a successful initial interview between the public health worker and the patient. (page 64)**

The initial interview marks the beginning of the public health worker's relationship with a patient and therefore requires a certain amount of planning. For the initial interview to be successful, a public health worker should

- # Have a clear understanding of the interview's objectives
- # Plan the interview so that each objective is given adequate time
- # Listen to the patient's concerns about TB and its treatment
- # Share information freely with the patient

**8.19. Under what conditions should the initial interview take place? List four conditions that encourage effective communication. (page 66)**

Because it is important to make the patient as comfortable as possible, the public health worker should ensure that the interview takes place under conditions that encourage effective communication. These conditions include

- # Arranging for privacy and maintaining confidentiality and assuring the patient all sensitive information will be kept private
- # Creating an environment relatively free of distractions and interruptions (for example, after physician or nursing rounds)
- # Listening attentively and respectfully to the patient (for example, sit down near the patient and use open, relaxed body language)



- # Being objective and nonjudgmental (for example, be patient, not accusatory, and never show frustration)

**8.20. List the three main objectives of a contact investigation that should be kept in mind during the initial patient interview. (page 69)**

The contact investigation should be started during the initial patient interview, with three main objectives in mind:

- # Find out more about the patient's symptoms to help determine the period of infectiousness
- # Find out places where the patient spent time while he or she was infectious
- # Identify the patient's contacts, get the contacts' addresses (if available) or other locating information, and find out how long the contacts were exposed to the patient while he or she was infectious

**8.21. List seven things that the public health worker will need to learn about his or her patient in order to assess potential adherence problems. (page 69)**

The public health worker will need to learn as much as possible about his or her patient in order to assess potential adherence problems. The public health worker will need to learn about the patient's

- # Medical history and current health problems
- # Ethnic background and primary language(s)
- # Knowledge and beliefs about TB
- # Ability to take responsibility for following their TB treatment plan or DOT arrangement
- # Resources (for example, family, other social support, finances, interpretive services)
- # Barriers to treatment (for example, mental or psychological problems, substance abuse, homelessness)
- # History of adherence to previous TB regimens or other medication regimens





**8.22. Describe the responsibility of the TB program to every suspected or confirmed TB case.** (pages 76-77)

It is the responsibility of the TB program to ensure that every suspected or confirmed TB case that is reported receives

- # A complete diagnostic evaluation
- # An adequate regimen of TB medications
- # Appropriate measures to promote adherence and completion of therapy

Public health workers assigned to hospitals and institutions can play a key role in carrying out these responsibilities; however, practices will vary from facility to facility and often the infection control practitioner, hospital epidemiologist, or employee health department will be primarily responsible for quality assurance. Public health workers should collaborate with a facility's staff to monitor the patient's care throughout the hospital or institutional stay. This means assessing the patient's care periodically, after a case has been reported and the initial patient interview has taken place, and reporting any problems to the TB program.

**8.23. Explain the purpose of discharge planning and briefly describe the public health worker's role in discharge planning for a TB patient.** (pages 80-81)

For patients who leave a hospital or institution, discharge planning is necessary to ensure continuity of treatment and quality care. Discharge planning for TB patients should begin soon after a suspected or confirmed TB case is reported. It is usually a team effort, led by a nurse or a facility's discharge planner. In some cases, a case manager assigned by the public health department may be in charge of planning for a patient's discharge. Team members often include at least two or more of the following:

- # The discharge planner or case manager
- # Nurses or therapists involved in the patient's care
- # A social worker
- # The patient's physician
- # Expert consultants, if required
- # DOT outreach worker



An institution-based public health worker can also provide input and share responsibility for ensuring that the TB patient is appropriately managed after discharge.

The discharge planning team should meet while the patient is in the facility to review the patient's treatment plan and develop an adherence plan. An adherence plan is a written plan that is based on the patient's understanding and acceptance of the TB diagnosis, that addresses barriers to adherence, and that details the method chosen to deliver treatment and monitor adherence for that specific patient. If possible, the patient should be included in this meeting to aid in decision-making. The treatment plan includes the details of the medical regimen as ordered by the physician, as well as plans for monitoring for adverse reactions and other follow-up care.

**8.24. Explain how to find information on a patient who has been discharged, left the facility, or died.** (pages 84-85)

The public health worker may need to review the medical record of a patient who has been discharged, has left the facility against medical advice, or has died. In addition, it is sometimes important to review the medical record from a patient's prior hospitalization or stay in an institution. When a patient is no longer in the facility, the patient's medical record is sent to the medical records department. To access these records, the public health worker will usually complete a medical record request form, providing the patient's name and either a medical record number or the patient's date of birth. Each facility has a specific procedure for requesting patient records; the public health worker should become familiar with the procedure used in the facility or facilities in which he or she works. If a patient has died while in the facility, there will usually be a death report and a pathology report in the medical record. These reports should be reviewed along with the rest of the medical record for information relevant to the contact investigation.

**8.25. Explain the procedures for sending patient information from one health jurisdiction to another.** (pages 87-88)

When a patient leaves a health jurisdiction before completing TB therapy, patient information should be sent to the patient's destination health jurisdiction. The following procedures should be followed:

- # Patients who are on antituberculosis treatment or treatment for LTBI should be given records they can take with them to indicate their current treatment and diagnostic status. Special care should be taken to instruct such persons on how to take their medications and how and where to get additional medication and medical care at the destination sites.



- # All relevant medical information should be forwarded to the destination jurisdiction. Some jurisdictions use a standard form when referring patients between health jurisdictions.
- # The state health department TB control officers should be contacted and apprised of the need for follow-up and the next possible destination of the patient.
- # Although sharing necessary information between health departments is encouraged to ensure continuity of care, as well as protect the public, measures should be taken to ensure confidentiality.
- # All information received on the TB patient, including TB laboratory reports, after the TB patient departs for another area should be immediately telephoned, faxed, or expeditiously mailed to the receiving jurisdiction following procedures to maintain patient confidentiality.
- # Out-of-state communications regarding TB care should be routed through state health departments to ensure that the information is transmitted and that necessary follow-up is initiated.
- # The referring jurisdiction should follow up and maintain communication as needed until the patient is located in the destination jurisdiction.



## ANSWERS TO CASE STUDIES

**8.1. As the new public health worker at the state prison (or in any other facility to which you are assigned), you are asked to attend a staff meeting where you have the opportunity to present to the administration a description of your job, your role at the facility, and the process you use to conduct your work. Because you suspect that the facility director has some misunderstandings about TB control, you are quite pleased to have this opportunity. You begin to prepare diligently for the meeting.**

**# What will you tell the director about the primary goals of TB prevention and control?**

The three primary goals of TB prevention and control are to

- # Identify and treat persons who have active TB disease
- # Identify and evaluate exposed contacts, offering appropriate therapy as indicated
- # Test populations at high risk for TB infection and disease, offering treatment for LTBI to infected persons as indicated

To accomplish these goals, you have been assigned to make routine visits to the facility to gather information and interview patients who have suspected or confirmed cases of TB disease. The focus of your job is to gather information, interview patients, plan for patients' follow-up care, and collaborate with staff.

**# How will you describe your role at the facility and the process you use to conduct your work?**

You should present the basic process for conducting TB surveillance and providing case management in facilities such as hospitals or institutions. This process includes the following steps:

1. Identify suspected or confirmed TB cases as soon as possible and report them to the TB control program.
2. Collect information from the patient's medical record and other sources that will help maintain contact with the patient and manage his or her disease.



3. Conduct an initial interview with every patient who has suspected or confirmed TB to establish a good relationship and begin the necessary steps for a thorough contact investigation.
4. Plan for each TB patient's follow-up care upon discharge from the hospital or institution.

Health department staff should

- # Designate a specific person to work with correctional facilities
- # Ensure that cases of TB are promptly reported, counted, and recorded
- # Provide information from the TB registry in the health department so that information from the TB registry can be cross-matched with names of inmates admitted into correctional facilities to identify persons with TB disease who fail to report their TB history
- # Assist correctional facilities in developing, implementing, and updating
  - Q TB control policies and procedures
  - Q Training and educational programs
  - Q Tracking and patient record systems
  - Q HIV prevention programs
- # Ensure that released inmates complete therapy
- # Assist with contact investigations in and outside correctional facilities
- # Analyze TB morbidity in correctional facilities
- # Provide or refer to expert clinical consultation
- # Ensure access to adequate laboratory services



- 8.2. A public health worker is conducting active case finding in the laboratory of a small community hospital. The AFB logbook contains the following entries:

Specimen	AFB Smear Result	Culture Result
349	3+	Pending
362	0	<i>M. tuberculosis</i>
367	2+	<i>M. avium intracellulare</i>

- # Determine the classification for each specimen using the TB classification system and determine which specimens the public health worker should follow up.

Specimen 349 has a positive AFB smear result and a pending culture result, making this case a Class 5 TB suspect. Specimen 362 has a negative AFB smear result but a positive culture for *M. tuberculosis*, confirming a diagnosis of TB (Class 3). Specimen 367 was AFB-positive, but grew *M. avium intracellulare* in culture; specimen 367 therefore contains nontuberculous mycobacteria and should not be recorded.

- # What should the public health worker record?

For specimens 349 and 362, the public health worker should record the patient's

- # Name
- # Date of birth
- # Medical record number
- # Laboratory number
- # Date of specimen collection
- # Type of specimen
- # AFB smear result (with quantification)
- # Culture result (with species identification)
- # Drug susceptibility pattern
- # Case report number (if indicated)



The public health worker should check the date of collection for specimen 349; culture results should be available within 10 to 14 days of specimen collection (depending on the laboratory’s average turnaround times). In addition, the public health worker should determine when drug susceptibility results will be available for specimen 362 (and for specimen 349 if it is positive for *M. tuberculosis*); these results should be collected and made available to the provider as soon as possible.

**# Specimen #362 was collected from a patient who is not on the public health worker’s list of current suspected or confirmed TB cases in the hospital. What should be done?**

Whenever active case finding has identified an unreported TB case, the public health worker should alert the facility’s staff and a supervisor in the TB program. These persons should all work together to make sure a report is promptly submitted and to assess the cause of the failure to report. In this case, the AFB smear was negative and so the case may not have come to the attention of the infection control practitioner. As soon as the culture result was available, the laboratory should have notified both the hospital and the TB program.

**8.3. Another public health worker is conducting active case finding in a large residential facility for the mentally ill. The public health worker goes to the facility’s pharmacy to review information about patients receiving TB medications. For the current week, she notes that prescriptions of TB medications were filled for the following patients:**

<b>Patient ID</b>	<b>Medication Orders Filled</b>
<b>X309</b>	<b>Isoniazid</b>
<b>D904</b>	<b>Isoniazid, pyrazinamide, rifampin, ethambutol</b>
<b>P251</b>	<b>Isoniazid, rifampin</b>
<b>Q321</b>	<b>Ciprofloxacin, amikacin</b>

**# What patients should the public health worker record for follow-up? Why?**

Information found in the pharmacy records can be used to identify patients who are placed on two or more TB medications (and therefore may have active TB disease, not only TB infection). In this case, the public health worker should record



information regarding patients D904 and P251. They are both receiving at least two drugs used to treat TB. Patient X309 is receiving INH only and is most likely on a regimen for treatment for LTBI. Patient Q321 is receiving second-line drugs ciprofloxacin and amikacin. These drugs are primarily used to treat diseases other than TB; therefore, pharmacy surveillance does not usually include these drugs.

**# Patient P251 is not known to the TB program as a reported suspected or confirmed TB case. What should be done?**

Whenever active case finding has identified an unreported TB case, the public health worker should alert the facility's staff and a supervisor in the TB program. These persons should work together to make sure a report is promptly submitted and to assess the cause of the failure to report.

**8.4. You have received notification of a suspected TB case in Hospital Y and have located the patient's medical record. The admission note reads as follows:**

**This is a 35 y.o. man presenting with a productive cough, CP, and hemoptysis. On exam he is found to be cachectic with coarse breath sounds bilaterally. Lab values are significant for a low WBC. He has a cavity in the LUL on CXR. Most likely diagnosis is TB, however will r/o pneumonia.**

**# Does this information confirm a diagnosis of TB? (Hint: Use the medical glossary in the appendix for help with the abbreviations.)**

A TB case is usually confirmed by a positive culture for *M. tuberculosis*. At this point, this man has a suspected TB case (Class 5); a suspected case is one for which the diagnosis is pending due to an incomplete medical evaluation. This patient has symptoms of TB disease: a productive cough with bloody sputum (hemoptysis) and chest pain. The suspicion of TB disease is increased by his chest radiograph findings: a cavity in the upper lobe of his left lung.

**# What additional information is needed and where will you look for it?**

You need more information on the patient's diagnostic evaluation, including skin test results, smear results, and culture results. You should follow the daily progress notes chronologically to find skin test results. The administration of the PPD should be noted, followed by the results (in millimeters of induration) 48 to 72 hours later. If no results are given and the PPD has not yet been read, you should ask a nurse to read the skin test with you and document the result in the patient's record.





Your source for smear and culture results should be the actual report included in the laboratory results section or the laboratory's records. When smear or culture results are listed in the laboratory results section as pending, record the specimen number and date of submission and collect the results from the laboratory, provided adequate time has been elapsed since specimen collection. Be sure to verify all laboratory results listed in the progress notes, because these may not be accurate.

You should also gather information on the current treatment regimen from the medication record section. Some hospitals or institutions use a separate book to record all medications administered to patients on a specific ward. As treatment progresses, you will want to evaluate the patient's response to treatment, including specific TB symptoms and smear and culture results on specimens collected after treatment has begun. The medical record may also contain information on potential barriers to adherence; to help evaluate the patient's potential adherence to therapy, it is important to note pertinent social history.

- 8.5. Ms. Bouzide, a 34-year-old mother of four children, has been hospitalized for 3 days for TB disease. She had a severe coughing attack and collapsed on the street before being brought in by an ambulance service. Ms. Bouzide is now well enough for an initial interview; her husband will also be present. You have gathered information from the medical record before the interview and have discussed Ms. Bouzide's case with a social worker. Here is a brief summary of the background information:**

**Smear results: 3+ on 5/26/99**

**Culture results: pending**

**Radiograph report: cavitory lesions in right upper lobe**

**Family history: grandmother died of TB in 1978**

**Social history: immigrated from Morocco in 1997**

**Employment: odd jobs (laundry, tailoring, child care)**

- # How can you plan the interview so that you establish a good relationship with the patient?**

For your interview, you should plan ahead and allow adequate time to address your objectives. You should maintain control of the interview by clearly outlining and following your objectives, leaving time for Ms. Bouzide and her husband to raise any questions or concerns about her illness. It will also be best if the interview takes



place under conditions that encourage effective communication. These conditions include

- # Arranging for privacy and maintaining confidentiality and assuring Ms. Bouzide that all sensitive information will be kept private
- # Creating an environment relatively free of distractions and interruptions (for example, after physician or nursing rounds)
- # Listening attentively and respectfully to Ms. Bouzide and her husband (for example, sit down near her and use open, relaxed body language)
- # Being objective and nonjudgmental (for example, be patient, not accusatory, and never show frustration)

The initial interview with Ms. Bouzide is very important in establishing the foundation for a good relationship. You should introduce yourself to the patient and her husband, clearly stating your title and role with the TB program and the purpose of the interview: to exchange information that will help Ms. Bouzide complete a TB regimen and to identify her contacts. It is very important to confirm her address and phone number after discharge and to get the address of at least one other contact. Ms. Bouzide's husband and children should be evaluated as soon as possible; you should immediately set up a home visit with her husband. You should also collect information on other family members and friends, her contacts at the various odd jobs she has had, and anyone else who may have been exposed since Ms. Bouzide has been symptomatic.

You should use the initial interview to begin an assessment of Ms. Bouzide's knowledge, feelings, and beliefs about TB. Because her grandmother died of TB many years ago, she may have some knowledge of the disease and its treatment as well as some fears of the importance and consequences of her own disease. She will probably be very concerned about her children as well as other factors such as when she will be able to work again, how she will pay for her treatment, and the impact her treatment will have on her family and friends. You should discuss the importance of adherence to the TB treatment regimen and answer any questions Ms. Bouzide has about the treatment plan; an adherence plan can be developed at this or at subsequent interviews.

If you can make Ms. Bouzide and her husband feel comfortable and listen carefully to their questions, the initial interview can help lay the foundation for a relationship based on mutual trust.



**# What additional information will you need from Ms. Bouzide to begin a contact investigation?**

First, you need to confirm Ms. Bouzide's address, making sure that she will be there after discharge from the facility. Then you should begin the contact investigation by asking questions for the following reasons:

- # To find out more about Ms. Bouzide's symptoms to help determine the period of infectiousness
- # To find out places where she spent time while she was infectious
- # To identify Ms. Bouzide's contacts, get the contacts' addresses or other locating information (if available), and find out how long the contacts were exposed to the patient while she was infectious

Her coughing attack, positive AFB smear result, and cavitory lesions on the chest radiograph indicate that Ms. Bouzide is probably infectious. You need to know how long her cough has lasted and when she began to feel ill.

You need complete information on Ms. Bouzide's contacts at home, and a detailed history of her employment activities during the time she has had symptoms of TB. It is especially important to find out whether she was involved with child care during this time period; if so, skin testing of any exposed children will be a high priority. Module 6, Contact Investigations for Tuberculosis contains more information on this subject.

- 8.6. Mr. Donald is a 26-year-old homeless man who is unemployed. He is also a heavy drinker and uses crack. On admission to the city hospital, Mr. Donald had been complaining of a cough and night sweats. His temperature was 101°F, and he had lost a lot of weight. He was started on TB medications on the day of admission. In the daily progress notes over the 2 weeks following admission, it was noted that the patient's cough and night sweats subsided, his temperature came down to 98.6°F, and his weight increased by 5 pounds.**

**Mr. Donald's illness was reported as a suspected TB case by the infection control practitioner. Now that he is feeling better, he keeps threatening to walk out of the hospital to go back to the streets. You need to meet Mr. Donald for an initial patient interview.**



### # What will your objectives be during that interview?

Again, the initial patient interview is very important and should be used to establish the foundation for a good relationship with Mr. Donald based on mutual trust and understanding. When you meet Mr. Donald, you should introduce yourself, clearly stating your title and role with the TB program and the purpose of the interview: to exchange information that will help Mr. Donald complete a TB treatment regimen and to identify his contacts. Because Mr. Donald already seems restless in the hospital, it is crucial that you verify and obtain at least one other address of someone who will always know where Mr. Donald is. Even if he doesn't know the names of contacts, you can begin an investigation if you have a home address and the address of his favorite bar, as well as any other places he usually spends time.

You should stress to the patient the seriousness of his disease and the need for adequate treatment. If possible, begin an assessment of Mr. Donald's knowledge, feelings, and beliefs about TB. You should detail to him the treatment plan and discuss the importance of adherence to the TB treatment regimen. Before the interview, you should consult with Mr. Donald's physician and staff nurse, the infection control practitioner, and the social worker prior to meeting with the patient so that you can prepare for the interview with adequate background information. It may be appropriate to discuss incentives with Mr. Donald, if it seems he is not motivated to complete treatment. Be honest and firm about the seriousness of the need for treatment, and try to address any questions or concerns the patient has.

### # How will you conduct an assessment of Mr. Donald to determine potential adherence?

To assess Mr. Donald's potential adherence problems, you will need to learn as much as possible about him, including the patient's

- # Medical history and current health problems
- # Ethnic background and primary language(s)
- # Knowledge and beliefs about TB
- # Ability to take responsibility for following his TB treatment plan or DOT arrangement
- # Resources (for example, family, other social support, finances, interpretive services)



- # Barriers to treatment (for example, mental or psychological problems, homelessness, in addition to his alcohol problem)
- # History of adherence to previous TB regimens or other medication regimens

You should ask Mr. Donald about the points listed above, focusing on the identification of those problems most important to him as treatment begins.

Because TB treatment often begins abruptly, patients may have difficulties changing their behaviors as expected. Mr. Donald is already expressing an unwillingness to cooperate with his providers; this unwillingness may be due to his desire to go have a drink or it may be related to other feelings or beliefs that Mr. Donald has about TB disease or medical care. You should assess the extent of Mr. Donald's dependence on alcohol and question him about

- # Previous experiences with medication or hospitalization
- # Family or social support
- # His current living situation
- # Whether he has a need for assistance from social programs
- # His knowledge, feelings, and beliefs about TB

If mental illness is a factor, you should consult the social worker, psychiatrist, or psychologist who is providing mental health care to the patient. If Mr. Donald has family members or friends who are aware of his condition, you may want to ask them about his ability to complete a treatment regimen. DOT may be the best option for Mr. Donald's care, especially if you identify significant potential barriers to his adherence to a TB regimen; the possibility of an alcohol abuse treatment program might also be discussed.

At this interview or subsequent interviews, you should identify differences between what you believe and what Mr. Donald believes. That way, you will have time to correct his misinformation and provide the necessary education. If Mr. Donald's ideas are different from your own, you should accept that he has different views, and then make sure he knows your point of view about TB. You can make it clear that even if you do not share his views, you respect them. This will improve your relationship and make Mr. Donald more likely to be adherent.



**8.7. You are the public health worker assigned to the Buena Vista residential home for the elderly. There are currently two TB patients in the facility who are taking TB medications. They have been reported to the TB program and will remain in the facility for the duration of their TB treatment.**

**# What are your concerns for ensuring the quality of their case management?**

It is the responsibility of the TB program to ensure that every suspected or confirmed TB case that is reported receives

- # A complete diagnostic evaluation
- # An adequate regimen of TB medications
- # Appropriate measures to promote adherence and completion of therapy

You should ensure that the diagnostic evaluation for each patient is complete (i.e., medical history, physical examination, Mantoux tuberculin skin test, chest radiograph, and bacteriologic or histologic examinations as appropriate). You may also use the results of this evaluation to assess each patient's degree of infectiousness and the possibility of disease caused by drug-resistant organisms. To detect any drug resistance as soon as possible, the initial *M. tuberculosis* isolate should always be tested for its drug susceptibility pattern.

In addition, you should ensure that the treatment regimen used is adequate for each patient. Regimens for the treatment of TB must contain multiple drugs to which the organisms are susceptible. Therefore, you should help ensure appropriate care by reporting the following problems to a supervisor:

- # The use of a nonstandard regimen to treat TB disease
- # The use of a three-drug regimen instead of four drugs, in an area with high levels of drug resistance (a prevalence of INH-resistant TB of 4% or greater) or in treating a patient at high risk for drug resistance
- # The addition of a single drug to a failing regimen

These problems can all lead to treatment failure and the emergence of drug-resistant tubercle bacilli.

You should also monitor patients' adherence to the treatment regimen and educate each patient about TB disease. If problems arise while the patient is in the facility



that create barriers to a patient's adherence (for example, moves within the facility, staffing problems), you should ensure that adherence barriers are promptly addressed and resolved.

**While reviewing the patients' medical records, you find that drug susceptibility testing has not been done on either patient's isolate. Both patients are currently on a standard, three-drug regimen that is appropriate for your local area. However, you are somewhat disturbed to find out that one patient, Mr. Sichler, was homeless for a time and wandered from shelter to shelter in a nearby city (with high drug resistance rates) before coming to Buena Vista.**

**# What should you do?**

In areas where less than 4% of cases are resistant to INH (first drug susceptibility test only), three drugs (INH, RIF, and PZA) may be adequate for the initial regimen, provided the patient has no risk factors for drug-resistant disease. As mentioned above, the initial *M. tuberculosis* isolate should always be tested for its drug susceptibility pattern. In this case, Mr. Sichler may well be receiving an inadequate treatment regimen, because he is at high risk for drug resistance. You should report this problem to a supervisor and to the patient's physician. If the TB program has any records of Mr. Sichler's previous regimen, you should supply this information to the patient's provider.

**8.8. You have just been assigned to work in the state prison, which houses several hundred prisoners and usually has three to six TB cases per year. Currently, two prisoners are taking TB medication and seven are on regimens for the treatment for LTBI. Before you were assigned to the prison, the standard procedure when prisoners with TB disease were released was to notify the health department. The health department would make an appointment for the patient and, if the patient did not come, send a reminder card to the patient's address prior to incarceration (supplied by the prison administration). The treatment completion rate for these cases has been very low.**

**# One of the prisoners with TB disease is near the end of his sentence and has a hearing coming up in a few days. What can you do to plan for his release?**

For TB patients who leave an institution such as a correctional facility, discharge planning is necessary to ensure continuity of treatment and quality care. When a prisoner with TB disease is released from the facility, the public health worker is usually responsible for ensuring that the TB patient is appropriately managed after



discharge. Depending on available staff, you may work alone on this planning or as part of a team including prison medical staff.

If possible, the patient should be included in discharge planning to aid in decision-making. You should review both the treatment plan and the adherence plan. The treatment plan includes the details of the medical regimen as ordered by the physician, as well as plans for monitoring for adverse reactions and other follow-up care. The adherence plan, which is based on the patient's understanding and acceptance of the TB diagnosis, addresses barriers to adherence and details the method chosen to deliver treatment and monitor adherence for that specific patient. For this patient, specific incentives may be necessary to ensure that he keeps a follow-up appointment.

The follow-up appointment for DOT or for continued monitoring should be made at a location that is convenient (and preferably, familiar) to the patient. As a representative of the TB program, you should discuss follow-up care with the patient and explain the program that will be followed. You should notify the TB program of the date of discharge when it becomes known and of any changes in the treatment plan or adherence plan. This information is very important for coworkers assigned to the case who will provide follow-up care in the community.

**# What information will you need from this patient during your initial interview that will help discharge planning?**

The initial patient interview is very important and should be used to

- # Establish the foundation for a good relationship with the patient based on mutual trust and understanding
- # Confirm what the patient's address will be after discharge and gather information on the patient's contacts who may have been infected with *M. tuberculosis*
- # Begin an assessment of the patient's knowledge, feelings, and beliefs about TB
- # Discuss the importance of adherence to the TB treatment regimen

Depending on when the case was diagnosed, the contact investigation may have been done previously. If the patient developed TB disease while in the facility, his contacts (for example, cell mates, officers, cleaning staff) should have been screened for TB infection according to the prison's infection-control plan.

You should try to identify problems other than TB that the patient may encounter on reentering the community. These problems may include other medical conditions,





inadequate housing, poverty, family dysfunction, physical abuse, child abuse and neglect, or substance abuse. Unless these problems are addressed, patients may have serious barriers that prevent them from adhering to the prescribed regimen and keeping clinic appointments. DOT is strongly recommended for patients with potentially significant adherence problems. Some TB programs have collaborated with parole officers assigned to the patient after release; if this is the case, their input and support can be valuable.

**8.9. You are a health care worker at the Gryson County Health Department. You have been working closely with Juan Garcia, a 35-year-old Hispanic agricultural worker. Mr. Garcia was diagnosed with TB about 2 months ago. You have been giving DOT to Mr. Garcia at a local farm where he picks oranges. Orange season is coming to an end and you realize that Mr. Garcia will soon be heading North to look for more work. You have spoken to him about where he will be going next. He tells you that he is going to a farm in the next state. He is not exactly sure where it is, but he thinks he remembers the farm is located near a town called Jasper.**

**# What steps will you take before Mr. Garcia leaves to ensure the continuity of care?**

You should find out Mr. Garcia's destination and follow these procedures to help Mr. Garcia continue his TB care:

- # Give Mr. Garcia copies of his records he can take to indicate his current treatment and diagnostic status. Mr. Garcia should also be instructed on how to take his medication during his travel to the next jurisdiction and how and where to get additional medication and medical care at each of the possible destinations.
- # Contact the receiving jurisdictions to let them know that Mr. Garcia may be relocating to their jurisdiction. All relevant medical information should be forwarded to the destination jurisdictions.
- # The state department TB control offices should be contacted and apprised of the need for follow-up and the next possible destination of Mr. Garcia.
- # Although sharing information about Mr. Garcia is encouraged to maintain continuity of care, measures should be taken to ensure confidentiality.
- # All information received about Mr. Garcia (laboratory reports, etc.) after he departs for another area should be immediately telephoned, faxed, or expeditiously mailed to the possible receiving jurisdictions following procedures to maintain Mr. Garcia's confidentiality.



- # Out-of-state communications regarding TB care should be routed through state health departments to ensure that the information is transmitted and that necessary follow-up is initiated.
  
- # You should follow up and maintain communication as needed until Mr. Garcia is located in the destination jurisdiction.



## Appendix: Medical Records Abbreviations

### **A** — assessment

AB — antibody; abortion; antibiotic (any of the three)

ABD — abdomen

ABG — arterial blood gas (a test for oxygen and other blood gases)

ABX — antibiotics

AC — before meals

ACLS — advanced cardiac life support

AD LIB — as much as needed

AF — afebrile (without a fever); aortofemoral (blood vessels); atrial fibrillation (irregular heart beat)

AFB — acid-fast bacilli

AKA — also known as; or above the knee amputation

AODM — adult onset diabetes mellitus

AP — anteroposterior (front to back); abdominal-perineal

ARDS — adult respiratory distress syndrome

ARF — acute renal (kidney) failure

### **BAL** — bronchoalveolar lavage

BCG — bacille Calmette-Guérin (vaccination against TB)

BE — barium enema (radiograph of the lower intestines)

BF — black female

BID — twice a day

BM — black male; bone marrow (sometimes biopsied for TB); bowel movement

BP — blood pressure

BPM — heart beats per minute

BS — bowel or breath sounds

BW — body weight

BX — biopsy

### **C** — with

C/O — complaining of

C&S — culture and sensitivity

Ca — calcium

CA — cancer

CABG — coronary artery bypass graft (heart surgery)

CAD — coronary artery disease

capreo — capreomycin

CAT — computerized axial tomography (specialized radiograph, also called CT scan)

CBC — complete blood count

CC — chief complaint

CCU — clean catch urine; coronary care unit

CF — cystic fibrosis

CHF — congestive heart failure

Cipro — ciprofloxacin, a 2nd-line anti-TB medication

CMV — cytomegalovirus

CN — cranial nerves

CNS — central nervous system

COPD — chronic obstructive pulmonary disease

CP — chest pain; cerebral palsy

CPR — cardiopulmonary resuscitation

CRF — chronic renal (kidney) failure

CSF — cerebrospinal fluid

CT — computerized tomography (specialized radiograph)

CVA — cerebrovascular accident (stroke); costovertebral angle

CXR — chest x-ray (radiograph)

### **D&C** — dilation and curettage (uterine scraping)

DC, D/C — discontinue; discharge

DDx — differential diagnosis (list of possible diagnoses)

DKA — diabetic ketoacidosis

dL — deciliter

DM — diabetes mellitus

DNR — do not resuscitate

DOA — dead on arrival

DOE — dyspnea (shortness of breath) on exertion

DT — diphtheria tetanus (vaccine)

Dx — diagnosis



**E**CG — electrocardiogram  
 ED — emergency department  
 EDC — estimated date of confinement (estimated date of giving birth)  
 EKG — electrocardiogram  
 EMB — ethambutol  
 ENT — ear, nose, and throat  
 EOD — every other day  
 ER — emergency room  
 ESR — erythrocyte sedimentation rate  
 ET — endotracheal  
 ETA, ETH — ethionamide  
 ETOH — ethanol (alcohol)  
 ETT — endotracheal tube

**F**H — family history  
 FHX — family history  
 FTT — failure to thrive  
 FU, F/U — follow-up  
 FUO — fever of unknown origin  
 FX — fracture

**G** — gravida (pregnant)  
 GA — gastric aspiration  
 GC — gonorrhea (“clap”)  
 GI — gastrointestinal  
 GSW — gun-shot wound  
 GU — genitourinary

**H**&P — history and physical exam  
 H/H — hemoglobin/hematocrit  
 H/O — history of  
 HA — headache  
 HBP — high blood pressure  
 HBV — hepatitis B virus  
 HCT — hematocrit  
 HEENT — head, eyes, ear, nose, throat  
 HF — Hispanic female  
 HGB — hemoglobin  
 HIV — human immunodeficiency virus  
 HM — Hispanic male  
 HPI — history of present illness  
 HR — heart rate  
 HS — at bedtime  
 HSV — herpes simplex virus  
 HTN — hypertension  
 HX — history

**I**&D — incision and drainage  
 I&O — intake and output  
 IAN — intern admit note  
 ICU — intensive care unit  
 ID — identification; infectious disease  
 IDDM — insulin-dependent diabetes mellitus  
 IM — intramuscular  
 INH — isoniazid  
 IPN — intern progress note  
 IV — intravenous

**K**UB — x-ray of kidneys, ureters, and bladder  
 KVO — keep vein open (slow drip IV)

**L** — left  
 LLL — left lower lobe  
 LLQ — left lower quadrant  
 LMP — last menstrual period  
 LOC — loss of consciousness  
 LP — lumbar puncture  
 LUL — left upper lobe  
 LUQ — left upper quadrant

**M**AC — *Mycobacterium avium* complex  
 MI — myocardial infarction (heart attack); mitral insufficiency (leaky valve)  
 mL, ml — milliliter  
 MMR — measles, mumps, rubella vaccination  
 MRI — magnetic resonance imaging (specialized radiograph)  
 MRSA — methicillin-resistant *Staphylococcus aureus* (drug-resistant bacterial infection)  
 MTB — *Mycobacterium tuberculosis*  
 MVA — motor vehicle accident

**N**G — nasogastric  
 NIDDM — non-insulin-dependent diabetes mellitus  
 NKA — no known allergies  
 NKDA — no known drug allergies  
 NPO — nothing by mouth  
 NSAID — nonsteroidal anti-inflammatory drugs

**O** — objective  
 OB — obstetrics  
 OD — overdose or right eye or every day



Oflox — ofloxacin  
OM — otitis media  
OOB — out of bed  
OPV — oral polio vaccine  
OR — operating room

### **P** — plan

PA — posteroanterior (back to front, x-ray view)  
PAS — para-aminosalicylic acid, a 2nd line anti-TB medication  
PC — after meals  
PCP — pneumocystis carinii pneumonia  
PE — pulmonary embolus; physical exam; pleural effusion  
PERRLA — pupils equal, round, reactive to light with accommodation  
PFT — pulmonary function tests (tests of lung strength and volume)  
PMH — past medical history  
PMHX — past medical history  
PO — by mouth  
POB — place of birth  
PPD — purified protein derivative  
PR — by rectum  
PRBC — packed red blood cells (for transfusion)  
PRN — as often as needed  
PT — prothrombin time; physical therapy; patient  
PUD — peptic ulcer disease  
PZA — pyrazinamide

### **Q** — every

QD — every day  
QH — every hour  
QID — four times a day  
QNS — quantity not sufficient (on specimen sent to laboratory)  
QOD — every other day

### **R** — right

R/O — rule out  
RAN — resident admit note  
RBC — red blood cell  
RIF — rifampin  
RLL — right lower lobe  
RLQ — right lower quadrant  
RML — right middle lobe  
ROM — range of motion  
ROS — review of symptoms  
RR — respiratory rate  
RRR — regular heart rate and rhythm  
RT — rubella titer; radiation therapy  
RTC — return to clinic  
RUL — right upper lobe  
RUQ — right upper quadrant  
Rx — treatment

### **S** — without; subjective

S/P — status post (after)  
SH, SHx — social history  
SIG — write on label  
SL — sublingual (medicine taken under the tongue)  
SM — streptomycin  
SOB — shortness of breath  
SQ — subcutaneous  
STAT — immediately  
SubQ — subcutaneous  
Sx — symptoms

### **T**B — tuberculosis

TIA — transient ischemic attack (mini-stroke)  
TID — three times a day  
TKO — to keep open (IV fluid rate)  
TNTC — too numerous to count  
TORCH — toxoplasma, other = syphilis, rubella, cytomegalovirus, herpes virus  
TU — tuberculin units  
Tx — treatment; transplant

### **U**A — urinalysis

UGI — upper gastrointestinal  
URI — upper respiratory tract infection  
US — ultrasound  
UTI — urinary tract infection



**VSS** — vital signs stable

**WBC** — white blood cell count

**WD** — well-developed

**WF** — white female

**WM** — white male

**WN** — well-nourished

**WNL** — within normal limits

**YO** — years old