



Self-Study Modules on Tuberculosis

1-5 Glossary

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

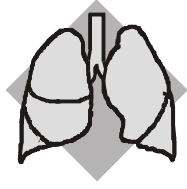
National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention

Division of Tuberculosis Elimination



Atlanta, Georgia
2008





15 Glossary

acid-fast bacilli (AFB) – mycobacteria that when stained, retain color even after they have been washed in an acid solution; may be detected under a microscope in a stained smear

adherence to treatment – following the recommended course of treatment by taking all the prescribed medications for the entire length of time necessary

administrative controls – the first level in the hierarchy of TB infection-control measures; managerial measures that reduce the risk for exposure to persons who have or are suspected to have TB disease

adverse reaction – negative side effect resulting from the use of a drug (for example, hepatitis, nausea, headache)

AIDS – acquired immunodeficiency syndrome, a condition in which the immune system is weakened and therefore less able to fight certain infections and diseases; AIDS is caused by infection with the human immunodeficiency virus (HIV)

airborne infection isolation (AII) room – formerly called “negative pressure isolation room.” A room with special characteristics to prevent the spread of droplet nuclei expelled by a TB patient, including negative-pressure ventilation

alveoli – the small air sacs of the lung that are at the end of the airway; when droplet nuclei reach these air sacs, TB infection begins

anergy – the inability to react to a skin test because of a weakened immune system, often caused by HIV infection or severe illness (see **anergy testing**)

anergy testing – giving skin tests using substances other than tuberculin; done in select situations to determine whether a person is anergic

antigen – protein substances that can produce an immune response (such as **CFP-10, ESAT-6, or those in PPD**)

antiretroviral therapy (ARV) – a lifelong combination drug treatment to improve the quality and length of life for a person living with HIV/AIDS

bacteriologic examination – tests done in a mycobacteriology laboratory to diagnose TB disease; includes examining a specimen under a microscope, culturing the specimen, and testing for drug susceptibility

baseline skin test – a tuberculin skin test (TST) given to employees or residents in certain facilities when they start their job or enter the facility (see **TB testing program** and **two-step testing**)

BCG – bacille Calmette-Guérin (BCG), a vaccine for TB disease that is used in many countries but rarely used in the United States; may cause a false-positive reaction to the TST but does not affect QuantiFERON[®]-TB Gold test (QFT-G) results



boosted reaction – a positive reaction to a TST, due to a boosted immune response from a skin test given up to a year earlier; occurs in people who were infected a long time ago and whose ability to react to tuberculin has lessened. Two-step testing is used in TB testing programs to tell the difference between boosted reactions and reactions caused by recent infection (see **booster phenomenon** and **two-step testing**)

booster phenomenon – a phenomenon in which people (especially older adults) who are skin tested many years after becoming infected with *M. tuberculosis* may have a negative reaction to an initial TST, followed by a positive reaction to a TST given up to a year later; this happens because the first TST boosts the immune response. Two-step testing is used in TB testing programs to tell the difference between boosted reactions and reactions caused by recent infection (see **two-step testing**)

bronchoscopy – a procedure used to obtain pulmonary secretions or lung tissue with an instrument called a bronchoscope; used only when patients cannot cough up sputum on their own and an induced specimen cannot be obtained

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

case rate – the number of cases that occur during a certain time period, divided by the size of the population during that time period; the case rate is often expressed in terms of a population size of 100,000 persons

case reporting – informing the state or local health department when a new case (an occurrence) of TB disease has been diagnosed or is suspected

cavity – a hollow space within the lung, visible on a chest x-ray, that may contain many tubercle bacilli; often occurs in people with severe pulmonary TB disease

CFP-10 – one of the antigens used in the QFT-G that is found in *M. tuberculosis* strains

civil surgeons – domestic health care providers who screen immigrants living in the United States and applying for a permanent residence visa or citizenship

clinical evaluation – an evaluation done to find out whether a patient has symptoms of TB disease or is responding to treatment; also done to check for adverse reaction to TB medications

clinician – a physician, physician's assistant, or nurse

close contact – a person who has shared the same air space in a household or other enclosed environment for a prolonged period of time (days or weeks, not minutes or hours) with a person with suspected or confirmed TB disease

close contacts – people who spend time with someone who has infectious TB disease

colonies – groups of mycobacteria that have grown in a culture

congregate setting – a setting in which a group of usually unrelated persons reside in close physical proximity. These settings may include hospitals, long term care facilities, assisted living facilities, correctional facilities, or homeless shelters (see residential facilities)



contact investigation – a procedure for interviewing a person who has TB disease to determine who may have been exposed to TB. People who have been exposed to TB are tested for LTBI and TB disease

continuation phase – the period after the first 8 weeks of TB disease treatment, during which tubercle bacilli that remain after the initial phase are treated with at least two drugs

control – a standard of comparison for checking or verifying the results of an experiment. In the QFT-G, the substances mitogen and saline are the controls

corticosteroid – a type of steroid, either natural or man-made, often used to treat arthritis or certain allergies

cough-inducing procedures – procedures that make a patient cough, such as sputum induction and bronchoscopy

culture – to grow organisms on media (substances containing nutrients) so that they or the product of this process can be identified; a positive culture for *M. tuberculosis* contains tubercle bacilli, whereas a negative culture contains no detectable tubercle bacilli

daily regimen – a treatment schedule in which the patient takes a dose of each prescribed medication every day

diabetes mellitus – a disease in which the body's ability to use sugar is weakened

diagnostic evaluation – an evaluation used to diagnose TB disease; includes a medical history, a chest x-ray, the collection of specimens for bacteriologic examination, and possibly a tuberculin skin test or an interferon-gamma release assay such as the QuantiFERON[®]-TB Gold test

directly observed therapy (DOT) – a strategy devised to help patients adhere to treatment; a designated person watches the TB patient swallow each dose of the prescribed drugs

droplet nuclei – very small droplets (1 to 5 microns in diameter) containing *M. tuberculosis* that may be expelled when a person who has infectious TB coughs, sneezes, speaks, or sings; the droplets can remain suspended in the air for several hours, depending on the environment

drug injection – using a needle and syringe to inject drugs into the body

drug susceptibility pattern – the list of drugs to which a strain of tubercle bacilli is susceptible and to which it is resistant

drug-resistant TB – TB caused by organisms that are able to grow in the presence of a particular drug; TB that is resistant to at least one first-line antituberculosis drug

environmental controls – the second level in the hierarchy of TB infection-control measures; engineering systems used to prevent the transmission of TB in health care settings, including ventilation, high-efficiency particulate air (HEPA) filtration, and ultraviolet germicidal irradiation

epidemiology – the study of the distribution and causes of disease and other health problems in different groups of people



erythema – redness around the site of the injection when a TST is done; erythema is not considered when the reaction size is measured, because redness does not indicate that a person has TB infection

ESAT-6 – one of the antigens used in the QFT-G that is found in *M. tuberculosis* strains

ethambutol (EMB) – a drug used to treat TB disease; may cause vision problems. Ethambutol should be used cautiously in children who are too young to be monitored for changes in their vision

exposure to TB – time spent with or near someone who has infectious TB disease

extensively drug resistant TB (XDR TB) – a rare type of MDR TB that is resistant to isoniazid and rifampin, plus resistant to any fluoroquinolone and at least one of three injectable second-line drugs (i.e., amikacin, kanamycin, or capreomycin)

extrapulmonary TB – TB disease that occurs in places other than the lungs, such as the lymph nodes, the pleura, the brain, the kidneys, or the bones; most types of extrapulmonary TB are not infectious

false-negative reaction – a negative reaction to the TST in a person who has TB infection; may be caused by HIV or other immunocompromising diseases, immunosuppressive drugs, a live-virus vaccination, recent infection (within the past 10 weeks), or very young age (younger than 6 months old)

false-positive reaction – a positive reaction to the TST in a person who does not have TB infection; may be caused by infection with nontuberculous mycobacteria or by vaccination with BCG

fit check – see **user check seal**

fit test – a method to evaluate the fit of a respirator on a person

foreign-born persons – people born outside of the United States; foreign-born persons from areas of the world where TB is common (for example, Asia, Africa, Latin America, Eastern Europe, Russia, and the Caribbean) are more likely to be infected with *M. tuberculosis*

gastric washing – a procedure done by inserting a tube through the patient's nose and passing it into the stomach; may be useful for obtaining a specimen for culture from children, who produce little or no sputum when they cough

health care facilities – places where people receive health care, such as hospitals or clinics

health care setting – a place where health care is delivered; includes inpatient, outpatient settings, TB clinics, settings in which home-based health-care and emergency medical services are provided, and laboratories handling TB clinical samples

HEPA filters (high efficiency particulate air filters) – special filters that can be used in ventilation systems to help remove droplet nuclei from the air

heparin – an anti-clotting agent added to patient's blood samples for conducting a QFT-G



hepatitis – inflammation of the liver, causing symptoms such as nausea, vomiting, abdominal pain, fatigue, and dark urine; hepatitis can be caused by several drugs used to treat LTBI or TB disease

HIV – human immunodeficiency virus, the virus that causes AIDS

immune system – cells and tissues in the body that protect the body from foreign substances

immunosuppressive therapy – therapy that suppresses, or weakens, the immune system

induced sputum – sputum that is obtained by having the patient inhale a saline (salt water) mist, causing the patient to cough deeply; this procedure is used to help patients cough up sputum if they cannot do so on their own

induration – swelling that can be felt around the site of injection after a TST is done; the reaction size is the diameter of the swollen area, measured across the forearm

infection control procedures – measures to prevent the spread of TB

infectious – capable of spreading infection; a person who has infectious TB disease expels droplets containing *M. tuberculosis* into the air when he or she coughs, sneezes, speaks, or sings

infiltrate – a collection of fluid and cells in the tissues of the lung; visible on a chest x-ray in people with pulmonary TB disease

initial phase – the first 8 weeks of TB disease treatment, during which most of the tubercle bacilli are killed

interferon-gamma (IFN- γ) – protein that is normally produced by the body in response to infection; the QFT-G results are based on how much IFN- γ is released in response to antigens mixed with a patient's blood sample

interferon-gamma release assay (IGRA) – a type of blood test that measures a person's immune reactivity to *M. tuberculosis*. In the U.S., QuantiFERON[®]-TB Gold and QuantiFERON[®]-TB Gold In-Tube are currently available IGRAs

intermittent therapy – a treatment schedule in which the patient takes each prescribed medication two or three times weekly at the appropriate dosage

isolate – a group of organisms isolated or separated from a specimen; in an *M. tuberculosis* isolate, the organisms have been grown in culture and identified as *M. tuberculosis*

isoniazid (INH) – a drug that is used for treating LTBI and TB disease; although relatively safe, it may cause hepatitis and other adverse reaction in some patients

latent TB infection (LTBI) – refers to the condition when a person is infected with tubercle bacilli but has not developed TB disease. Persons with LTBI carry the organism that causes TB but do not have TB disease symptoms and they cannot spread TB germs to others. Persons with LTBI usually have a positive result to the Mantoux tuberculin skin test or the QuantiFERON[®]-TB Gold test

liver function tests – tests done to detect injury to the liver



LTBI treatment – medication that is given to people who have TB infection to prevent them from developing TB disease

malaise – a feeling of general discomfort or illness

Mantoux tuberculin skin test (TST) – a method of testing for TB infection; a needle and syringe are used to inject 0.1 ml of 5 tuberculin units of liquid tuberculin between the layers of the skin (intradermally), usually on the forearm; the reaction to this test, usually a small swollen area (induration), is measured 48 to 72 hours after the injection and is interpreted as positive or negative depending on the size of the reaction and the patient’s risk factors for TB

media – substances containing special nutrients and used for growing cultures of bacteria found in specimens

medical history – the part of a patient’s life history that is important for diagnosing and treating TB infection or disease, including history of exposure, symptoms, previous diagnosis of TB infection or disease, and risk factors for TB disease

miliary TB – TB disease that occurs when tubercle bacilli enter the bloodstream and are carried to all parts of the body, where they grow and cause disease in multiple sites; the chest x-ray of patients with miliary TB often looks like millet seeds scattered throughout the lung

mono-resistant TB – TB that is resistant to one TB treatment drug

multidrug-resistant TB (MDR TB) – TB that is resistant to at least the drugs isoniazid and rifampin; MDR TB is more difficult to treat than drug-susceptible TB

multiple-puncture test – a type of tuberculin skin test done by puncturing the skin of the forearm with a set of short prongs or tines to inject tuberculin (for example, Tine test); although easy to give and convenient, these tests are not accurate and should not be used to determine whether a person has TB infection

mycobacteriology laboratory – a laboratory that deals specifically with *M. tuberculosis* and other mycobacteria

mycobacterium – a kind of bacterium; mycobacteria can cause a variety of diseases

Mycobacterium africanum – a type of tuberculous mycobacterium, closely related to *M. tuberculosis*, that can cause a disease similar to TB; it is very rare in the United States

***Mycobacterium avium* complex** – a common type of nontuberculous mycobacterium that can cause disease in humans

Mycobacterium bovis – a type of tuberculous mycobacterium that can cause a disease similar to TB; usually occurs in cows. Before the pasteurization of milk became common practice, these mycobacteria were often spread to humans through contaminated milk; in the United States today, *M. bovis* rarely affects humans

Mycobacterium canetti – a type of tuberculous mycobacterium that can cause disease in humans

Mycobacterium microti – a type of tuberculous mycobacteria that can cause generalized tuberculosis



Mycobacterium tuberculosis – the organism that causes TB in humans and is sometimes called the tubercle bacillus; belongs to a group of bacteria called mycobacteria

negative pressure – the difference in air-pressure between two areas; room that is under negative pressure has a lower pressure than adjacent areas, which keeps air from flowing out of the room and into adjacent rooms or areas; also used to describe a nonpowered respirator

negative pressure isolation room – see **airborne infection isolation (AII) room**

nontuberculous mycobacteria – mycobacteria that do not cause TB disease and are not usually spread from person to person; one example is *M. avium* complex

nucleic acid amplification (NAA) – a technique that amplifies (copies) DNA and RNA segments, in order to directly identify microorganisms in sputum specimens

panel physicians – overseas health care providers who screen U.S. immigration applicants for TB disease

pathogenesis – how an infection or disease develops in the body

peripheral neuropathy – damage to the sensory nerves of the hands and feet, causing a tingling sensation or a weakened sense of touch in the hands and feet

personal respirators – special device designed to protect users from inhaling droplet nuclei; used in health care facilities and other settings where TB may be spread

polymerase chain reaction (PCR) – a technique used to copy small segments of DNA

poly-resistant TB – TB that is resistant to at least two TB treatment drugs (but not both isoniazid and rifampin); but is not MDR TB

PPD (purified protein derivative) – antigens such as the type of tuberculin used in the TST (see **antigen**)

PPD skin test – a tuberculin skin test that uses PPD tuberculin

primary drug-resistant TB – drug-resistant TB caused by person-to-person transmission of drug-resistant organisms

primary TB – primary TB generally affects the mid and lower lung; in children this form of TB is much more common

pulmonary TB – TB disease that occurs in the lungs typically causing a cough and an abnormal chest x-ray; pulmonary TB is usually infectious if untreated. Most TB cases reported in the United States are pulmonary cases

pyridoxine – another name for vitamin B6; it is given to prevent peripheral neuropathy; should always be given to pregnant and breastfeeding women on isoniazid

QuantiFERON[®]-TB Gold test (QFT-G) – a blood test used for diagnosing infection with *M. tuberculosis*. The QFT-G measures a patient's immune reactivity to *M. tuberculosis* by measuring the response to TB proteins when they are mixed with a small amount of blood (see IGRAs)



reactivation (post-primary) TB – TB that generally affects upper lobes; sometimes with cavities and is usually found in adults. Sometimes called adult-type TB

residential facilities – institutions where people live, such as nursing homes, assisted living facilities, correctional facilities, or homeless shelters (see congregate setting)

resistant – an organism’s ability to grow despite the presence of a particular drug

respiratory-protection controls – the third level in the hierarchy of TB infection-control measures; used to minimize the risk for exposure to *M. tuberculosis*

rifabutin – a drug used to treat TB disease; used as a substitute for rifampin (RIF) in the treatment of all forms of TB

rifampin (RIF) – a drug used to treat TB disease; also used for LTBI treatment. Rifampin has several possible side effects (for example, hepatitis, turning body fluids orange, drug interactions)

rifapentine – a drug used to treat TB disease; used once weekly with isoniazid during the continuation phase with selected HIV negative patients

secondary drug-resistant TB – also referred to as acquired drug-resistant TB; develops during TB treatment, either because the patient was not treated with the appropriate treatment regimen or because the patient did not follow the treatment regimen as prescribed

silicosis – a lung disease caused by inhaling silica dust, which is used in the production of glass and ceramics; occurs most often in mining and foundry workers

skin test conversion – a change in a skin test reaction from negative to positive between testing intervals

smear – a specimen that has been smeared onto a glass slide, stained, washed in an acid solution, and then placed under the microscope for examination; used to detect acid-fast bacilli in a specimen

sputum – phlegm from deep in the lungs, collected in a sterile container for processing and examination

surgical mask – device worn over the nose and mouth of a person with suspected or confirmed infectious TB disease to prevent infectious droplet nuclei from being spread (exhaled) into the air

susceptible – an organism’s ability to be killed by a particular drug

symptoms of TB disease – noticeable conditions caused by TB disease. The symptoms of pulmonary TB disease include coughing, pain in the chest when breathing or coughing, and coughing up sputum or blood. The general symptoms of TB disease (pulmonary or extrapulmonary) include weight loss, fatigue, malaise, fever, and night sweats. The symptoms of extrapulmonary TB disease depend on the part of the body that is affected by the disease

targeted testing – a TB control strategy to identify persons at high risk for latent TB infection and persons at high risk for developing TB disease who would benefit from treatment



TB risk assessment – an initial and ongoing evaluation of the risk for transmission of *M. tuberculosis* in a particular health care setting

TB testing – an administrative control measure in which evaluation for latent TB infection (LTBI) and TB disease are performed through initial and serial testing of health care workers

TB testing program – a program in which employees and residents of a facility are periodically tested for TB; done to identify people who have TB infection and possibly TB disease and to determine whether TB is being transmitted in the facility

transmission – the spread of an organism, such as *M. tuberculosis*, from one person to another; probability of transmission depends on the contagiousness of the patient, the type of environment, the length of exposure, and the virulence or strength of the organism

TST (tuberculin skin test) – see Mantoux tuberculin skin test

tubercle bacilli – another name for the *Mycobacterium tuberculosis* organisms that cause TB disease

tuberculin – a substance made from tubercle bacilli that have been killed by heating; used to determine whether a person has TB infection. Tuberculin is not a vaccine

tuberculin skin test (TST) – a test used to detect TB infection (see **Mantoux tuberculin skin test** in glossary)

tuberculin unit – a standard strength of tuberculin used in the United States and Canada; a strength of 5 tuberculin units is used for the Mantoux TST

tuberculous mycobacteria – mycobacteria that can cause TB disease or other diseases very similar to TB; the tuberculous mycobacteria include *M. tuberculosis*, *M. bovis*, *M. africanum*, *M. canetti*, and *M. microti*

two-step testing – a strategy used in TB testing programs to distinguish a boosted reaction (caused by TB infection that occurred many years before the skin test) from a reaction caused by recent infection. If a person has a negative reaction to an initial skin test, a second test is given 1 to 3 weeks later; a positive reaction to the second test probably represents a boosted reaction, not recent infection. Two-step testing is used in many TB testing programs for skin testing employees when they start their job

ultraviolet germicidal irradiation – the use of special lamps that give off ultraviolet light, which kills the tubercle bacilli contained in droplet nuclei

user seal check – formerly called “fit check”; procedure performed to check for the proper seal of a respirator each time a respirator is put on

ventilation systems – air systems designed to maintain negative pressure and to exhaust the air properly; designed to minimize the spread of TB in a health care facility

virulence – refers to the ability of an organism to produce a disease. The virulence (strength) of a bacteria is associated with the severity of the disease

XDR TB – see **extensively drug resistant TB**