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Appendix A - Glossary of terms

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ADDENDUM

Appendix A - Glossary of terms

Aboriginal Peoples: see **Indigenous Peoples**.

Acid-fast bacteria (bacilli): Microorganisms that are distinguished by their retention of specific stains even after being rinsed with an acid solution. The majority of acid-fast bacteria (AFB) in patient specimens are mycobacteria, including species other than *Mycobacterium tuberculosis* complex. The relative concentration of AFB per unit area on a slide (the **smear** grade) is associated with infectiousness. A positive culture is required for laboratory confirmation of *M. tuberculosis* complex.

Adherence: Patient's and health care provider's ability to follow disease management recommendations appropriately; used interchangeably with **compliance**.

Aerosol: Small droplets that are exhaled or coughed up. In a patient with **pulmonary tuberculosis** these may contain *Mycobacterium tuberculosis* bacteria that are suspended in the air and lead to the spread of infection.

Aerosol-generating medical procedures: Medical procedures that may generate aerosols as a result of artificial manipulation of a person's airway.

Air changes per hour (ACH): The number of air changes per hour in a room, one air change being a volume of air equal to that of the room (height times width times length).

Airborne infection isolation: The conditions into which a patient with suspected or proven **active tuberculosis** may be placed for purposes of preventing transmission to other people (formerly termed airborne **respiratory isolation**).

Airborne infection isolation room (AIIR): Formerly, negative pressure isolation room. An AIIR is a single-occupancy patient care room used to isolate people with a suspected or confirmed airborne infectious disease. Environmental factors are controlled in an AIIR to minimize the transmission of infectious agents that are usually transmitted from person to person by droplet nuclei associated with coughing or aerosolization of contaminated fluids. An AIIR should provide negative pressure in the room (so that no air flows out of the room into adjacent areas) and should direct exhaust of air from the room to the outside of the building or recirculate the air through a HEPA filter before returning it to circulation.

Anergy: A condition in which there is diminished ability to exhibit delayed T-cell hypersensitivity reaction to antigens because of altered immune function. When referring to an inability to react to a skin test, the correct term is "cutaneous anergy". Anergy skin testing is no longer recommended in the context of interpretation of a **tuberculin skin test** result.

Bacille Calmette-Guérin (BCG): A live vaccine derived from attenuated *Mycobacterium bovis*.

BACTEC: A previous broth-based laboratory culture technique for *Mycobacterium tuberculosis* using radiometric methods (the technology is now discontinued).

Booster phenomenon: Increase in **tuberculin skin test** (TST) response after an initially negative test when the test is repeated at any time from 1 week to 1 year later, in the absence of exposure or other evidence of new TB infection.

Break of contact (see also Contact): Moment when exposure to a person with active **infectious** tuberculosis ends. This can be when the active case is placed in airborne infection isolation or when he or she is deemed no longer **infectious** after a period of treatment.

Cavitary disease: Evidence on chest x-ray, CT scan, or pathology tests of lung destruction resulting in cavities or cystic areas that communicate with a bronchus. On chest imaging a cavity is defined as a gas filled space within pulmonary consolidation, a mass or a nodule. Cavities generally harbor large numbers of bacteria and, as a result, patients with cavitary disease tend to be highly **infectious**.

Chemoprophylaxis: See treatment of tuberculosis infection (previously referred to as latent tuberculosis infection).

Cluster: Two or more isolates with a shared identical genotype ("fingerprint") detected using a method such as mycobacteria interspersed repetitive unit (MIRU) testing, insertion sequence *6110* (IS*6110*) based **restriction fragment length polymorphism (RFLP)** testing or spoligotyping.

Completion (active tuberculosis): See **Treatment completion.**

Compliance: See **adherence.**

Congregate settings: Institutional settings where people reside in close proximity to each other, ranging from correctional facilities (prisons and jails), to homeless shelters, refugee camps, army barracks, hospices, dormitories, and nursing homes.

Contact: a person identified as having been exposed to a patient with infectious TB. The closeness and duration of exposure usually corresponds with the risk of becoming infected.

Conversion (tuberculin conversion): An increase in the size of a **tuberculin skin test** (TST) reaction on repeated testing that reflects new TB infection. Tuberculin conversion is defined as **induration** of 10 mm or greater when an earlier test resulted in a reaction of less than 5 mm. If the earlier result was between 5 and 9 mm, there are two criteria:

1. An increase of 6 mm or more—this is a more sensitive criterion, which is suggested for those who are immune compromised with increased risk of disease or for an **outbreak**;
2. An increase of 10 mm or more—this is a less sensitive but more specific criterion. In general, the larger the increase, the more likely that it is due to true conversion.

Culture-positive disease: The isolation of *Mycobacterium tuberculosis* complex (excluding BCG strain) from clinical specimens (sputum, body secretions or tissue).

Cure (active non MDR/XDR-TB): Culture-negative at the **completion** of treatment.

Cure (active MDR/XDR-TB): At least five negative cultures in the final 12 months of treatment. With strong clinical evidence of cure, a patient may be considered cured with one positive culture of these five as long as the last three consecutive cultures, taken at least 30 days apart, are all negative.

Defaulter: A patient who stops tuberculosis treatment, for 2 months or more, before **completion** of 80% of doses (see also **Return after Default).** The term **patient decision to stop therapy** is preferred.

Delayed-type hypersensitivity (DTH): Cell-mediated inflammatory reaction to an antigen that is recognized by the immune system, typically because of previous exposure to the same or similar antigens. DTH responses are usually maximal 48-72 hours after exposure to the antigen.

Directly observed preventive therapy (DOPT): The process whereby a health care worker or pill dispenser watches the patient swallow each dose of medication for **tuberculosis infection**, to enhance **treatment completion** rates. DOPT is also known as directly observed prophylaxis (DOP).

Directly observed therapy (DOT): this term refers strictly to the direct observation of a person ingesting TB medications.

Disseminated tuberculosis: Active TB disease that affects three or more sites, or positive blood culture(s) for *Mycobacterium tuberculosis*. See also **miliary TB.**

DNA probe: A molecular diagnostic technique whereby the organism grown on culture can be rapidly speciated within a matter of hours.

Droplet nuclei: Airborne particles resulting from a potentially infectious (microorganism-bearing) droplet from which most of the liquid has evaporated, allowing the particle to remain suspended in the air.

Drug resistance: In-vitro determination that growth of a strain of *Mycobacterium tuberculosis* is not inhibited by standard concentrations of an anti-TB drug.

Elimination: The elimination of tuberculosis as a global public health problem, meaning an incidence of tuberculosis disease of less than 1 per million population (see http://www.stoptb.org/global/plan/).

Enabler: A practical item given to a patient to facilitate **adherence** to treatment, clinic appointments or other aspects of treatment.

Extensively drug-resistant TB (XDR-TB): MDR-TB with additional resistance to any fluoroquinolone (FQN) plus to bedaquiline (BDQ) or linezolid (LZD).

Extra-pulmonary tuberculosis: Site of TB that is outside the lungs and respiratory tract. This includes tuberculous pleurisy and TB of the intrathoracic lymph nodes, mediastinum, nasopharynx, nose (septum) or sinus (any nasal) and all nonrespiratory sites.

Failure (active tuberculosis): See **Treatment failure.**

First-line anti-tuberculosis drug: First-line antibiotics for the treatment of **active tuberculosis disease.** These are isoniazid, rifampin, ethambutol and pyrazinamide, and are considered the most effective and best tolerated. Streptomycin is no longer considered a first-line drug in Canada.

First Nations: Indian people in Canada, both "Status" and "non-Status". **Status Indians** are registered with the federal government as Indians, according to the terms of the *Indian Act.*

Fit testing: The use of a qualitative or quantitative method to evaluate the fit of a specific manufacturer, model and size of respirator on an individual.

Healthcare-associated infection: Infections that are transmitted within a healthcare setting during the provision of healthcare (previously referred to as nosocomial infection).

Healthcare facilities: Facilities where healthcare is delivered, including but not limited to acute-care hospitals, emergency departments, rehabilitation hospitals, mental health hospitals, outpatient clinics, and long-term care homes.

Health care workers: Individuals who provide healthcare or support services, such as nurses, physicians, dentists, nurse practitioners, paramedics, emergency first responders on occasion, allied health professionals, unregulated health care providers, clinical instructors and students, volunteers, and housekeeping staff.

High-efficiency particulate air (HEPA) filter: A filter that is certified to remove >99.97% of particles 0.3 μm in size, including *Mycobacterium tuberculosis* containing droplet nuclei; the filter can be either portable or stationary.

Immunocompromising condition: A condition in which at least part of the immune system is functioning at less than normal capacity.

Inactive pulmonary tuberculosis: Abnormal chest x-ray with findings considered typical of previous TB infection or disease, plus at least three sputum cultures negative for tuberculosis or the chest x-ray abnormalities stable for at least 6 months.

Incentive: A gift given to patients to encourage or acknowledge their **adherence** to treatment.

Incidence: The number of new occurrences of a given disease during a specified period of time.

Incipient tuberculosis: An intermediate state between tuberculosis infection and symptomatic pulmonary tuberculosis which is likely to progress to active disease but does not cause detectable abnormalities.

Index patient: the initial patient identified with TB disease, from which the process of contact investigation begins.

Indigenous Peoples: The original inhabitants of North America, predating the arrival of Europeans. The Canadian *Constitution Act* of 1982 recognizes three major groups: First Nations, Inuit and Métis.

Induration: The soft tissue swelling that is measured when determining the **tuberculin skin test** response to **purified protein derivative (PPD) tuberculin**. It is to be distinguished from erythema or redness, which should not be measured.

Infectious: The condition whereby the patient can transmit infection to others by virtue of the production of **aerosols** containing TB bacteria. Patients with **smear**-positive, **cavitary** and laryngeal disease are usually the most infectious.

Interferon-gamma release assay (IGRA): In-vitro T-cell based assays that measure interferon-γ (IFN-γ) production and that have been developed as alternatives to **tuberculin skin testing** (TST) for the diagnosis of TB infection. At the present time, two different types of IGRAs are registered for use in Canada. These are the Quantiferon®-TB Gold Plus (Qiagen) and the T-SPOT.*TB*® (Oxford Immunotec) assays.

Intermittent therapy: Therapy administered three times a week. This therapy must always be administered in a fully supervised, directly observed fashion and is usually reserved for the period after the initial intensive daily portion of therapy.

Intradermal: The method of injecting either **PPD** skin test antigen using the Mantoux technique or vaccinating with **BCG vaccine**.

Inuit: Are Indigenous People of the Artic with distinct heritage, language and culture. The Inuit live primarily in Nunatsiavut (Labrador), Nunavik (northern Quebec), Nunavut and the Inuvialuit Settlement Region in the Northwest Territories.

Latent TB infection: see TB infection

Long-term care home: A facility that includes a variety of types and levels of skilled nursing care for individuals requiring 24-hour surveillance, assistance, rehabilitation, restorative and/or medical care in a group setting that does not fall under the definition of acute care. These units and facilities are called by a variety of terms such as nursing, extended, transitional, subacute, chronic, continuing, complex, residential, rehabilitation, and convalescence care homes.

Mantoux technique: The recommended method of administering the **tuberculin skin test** – the **intradermal** injection of 5 tuberculin units of **PPD** into the forearm.

MDR TB: See **multidrug-resistant tuberculosis.**

Métis: People of mixed Indigenous and European ancestry who identify themselves as Métis and are distinct from **First Nations**, **Inuit** or non-Indigenous people.

MGIT: Mycobacteria growth indicator tube; a nonradiometric broth-based culture system. Detection of growth is due to the development of measurable fluorescence as a result of oxygen consumption.

Miliary tuberculosis: Disseminated active TB with abnormal chest X-ray showing diffuse micro-nodules (see also **disseminated TB**).

Mono-resistant TB: resistance to only one of the four first-line drugs.

Multidrug-resistant tuberculosis (MDR-TB): Tuberculosis due to bacteria resistant to isoniazid and rifampin with or without resistance to other first line anti-tuberculosis drugs.

***Mycobacterium tuberculosis* complex (MTBC)**: *M. tuberculosis* (including subspecies *M. canetti*), *M. bovis, M. bovis* BCG, *M. africanum, M. caprae, M. microti* and *M. pinnipedii*. All of these species except *M. bovis* BCG are included in the Canadian case definition of tuberculosis.

Natural ventilation: Use of natural forces to introduce and distribute outdoor air into a building, to replace the indoor air. These natural forces can be wind pressures or pressure differences generated by temperature differences between indoor and outdoor air.

New active case of tuberculosis disease: No documented evidence or history of previously treated **tuberculosis disease**.

Non-nominal reporting: A reporting system in which no names or other identifying information are provided to public health officials when tuberculosis data are reported.

Nontuberculous mycobacteria (NTM): All mycobacterial species except those that cause tuberculosis (*Mycobacterium tuberculosis* [including subspecies *M. canetti*], *M. bovis, M. africanum, M. caprae, M. microti and M. pinnipedii*) and those that cause leprosy (*M. leprae*). These are also known as MOTT (mycobacteria other than tuberculosis).

Notification: reporting of the TB diagnosis and patient information to public health authorities by the diagnosing clinician and laboratory, so that patient support, contact investigation, and epidemiologic data collection can be carried out.

Nucleic acid amplification tests (NAAT): A process whereby genetic material is amplified and then subsequently evaluated for the presence of DNA material; useful to identify specific mycobacterial species.

Outbreak: The following working definition of an outbreak for planning investigations is based on that proposed by the U.S. Centers for Disease Control and Prevention:

- During a contact investigation, in two or more of the identified contacts a diagnosis is made of active TB; or
- Any two or more cases occurring within 1 year or less of each other are discovered to be linked, but the linkage is recognized outside of a contact investigation. For example, two patients who received a diagnosis of TB independently, outside of a contact investigation, are found to work in the same office, yet they were not previously identified as contacts of each other. The linkage between cases should be confirmed by genotyping results if cultures are available.

Pediatric tuberculosis: Active TB in a child or adolescent.

Polymerase chain reaction (PCR): Method of **nucleic acid amplification** that is patented with license held by Roche.

Polydrug-resistant TB: resistance to at least two first line drugs without resistance to RMP

Post-landing surveillance: medical examination and follow-up of persons identified during pre-entry screening as having conditions associated with increased risk of developing TB disease. (Chapter 13)

Post-primary tuberculosis: older term – see **reactivation tuberculosis.**

PPD: See **Purified protein derivative (PPD) tuberculin.**

Pre-entry screening: medical screening undertaken on immigration applicants prior to arrival in Canada. In the context of TB, this screening aims to identify and treat applicants with active pulmonary TB prior to arrival. (Chapter 13)

Pre- Extensively drug-resistant TB (Pre-XDR-TB): MDR with additional resistance to any fluoroquinolone (FQN).

Prevalence: The number of people that are alive and have the disease at a specified time.

Preventive therapy: See **treatment of tuberculosis infection**.

Pulmonary tuberculosis: In Canada, pulmonary tuberculosis includes tuberculosis of the lungs and conducting airways, and includes tuberculous fibrosis of the lung, tuberculous bronchiectasis, tuberculous pneumonia, tuberculous pneumothorax, isolated tracheal or bronchial tuberculosis and tuberculous laryngitis (ICD-9 codes 011-011.9, 012.2, 012.3; ICD-10 codes A15.0-A15.3, A15.5, A15.9, A16.0-A16.2, A16.4, A16.9).

Purified protein derivative (PPD) tuberculin: A preparation of purified protein derived from culture filtrate of *Mycobacterium tuberculosis*. The **tuberculin skin test** uses 0.1 mL or 5 tuberculin units of PPD standardized to a common lot.

Reactivation tuberculosis: The development of active disease after a period of **tuberculosis infection.**

Recurrence: Patient previously successfully treated (**cure** or completed) for active TB disease in whom **active tuberculosis** develops a second time, but without proof that this is the same organism.

Registry: The systematic collection of data pertaining to all active cases of tuberculosis in a given jurisdiction, to allow for effective case management and the collection of epidemiologic information.

Reinfection: Individual who was previously infected with *Mycobacterium tuberculosis* and is exposed and infected a second time. This can be proven only if the individual had active disease once, then disease develops a second time and the organism has a different "DNA fingerprint" from the original organism. Such cases are to be reported as a **re-treatment case**.

Relapsed: Patient with tuberculosis disease that was treated successfully (**cure** or completed), but it recurred. In the strictest sense the isolate should be the same (i.e. confirmed to have the same "DNA fingerprint" as the original organism), but relapse is commonly used interchangeably with **recurrence**. Such cases are to be reported as a **re-treatment case**.

Respiratory tuberculosis: Infectious tuberculosis of the larynx, pulmonary tree and parenchyma.

Respiratory isolation: See **airborne infection isolation**.

Restriction fragment length polymorphism (RFLP): A technique whereby the genetic "fingerprint" of individual organisms can be compared with that of other organisms. When isolates share an identical RFLP pattern it suggests an epidemiologic link, either recent or in the remote past, between the individuals from whom the organisms were isolated. This is the most specific of three commonly used methods for "genetic fingerprinting" of *Mycobacterium tuberculosis.*

Re-treatment tuberculosis: Documented evidence or adequate history of previously active TB that was treated, and at least a 6-month interval since the last day of previous treatment* and Diagnosis of a subsequent episode of TB that meets the active TB case definition.

Return after default: A patient who has current evidence of active TB disease and had received treatment before, but this was interrupted for 2 or more consecutive months.

Second-line anti-tuberculosis drug: Anti-tuberculosis drugs reserved for use as alternative treatment to the **first-line** drugs. Second-line drugs consist of (1) bedaquiline, (2) linezolid, (3) fluoroquinolones, such as levofloxacin, and moxifloxacin (4) aminoglycosides, such as amikacin, kanamycin and streptomycin, (5) capreomycin, (6) cycloserine, (7) clofazimine, (7) ethionamide and protionamide, and (8) para-aminosalicylate (PAS).

Smear: A laboratory technique for preparing a specimen so that bacteria can be visualized microscopically.

Source patient: the person who was the original source of infection for secondary case(s) or contacts. The source patient can be, but is not necessarily, the index patient.

Source control measures: Methods to contain infectious agents from an infectious source. These can include separate entrances, partitions, triage/early recognition, airborne infection isolation rooms, diagnosis and treatment, respiratory hygiene (including masks, tissues, hand hygiene products and designated hand washing sinks), process controls for aerosol-generating medical procedures, and spatial separation.

Sputum-smear positive: Cases of **pulmonary tuberculosis** with positive smear results obtained from either spontaneously expectorated sputum, induced sputum, tracheal or bronchial washings/aspiration, or gastric wash.

Status Indian: A person who is registered with the federal government as an Indian, according to the terms of the *Indian Act*. Status Indians are also known as Registered Indians.

Subclinical tuberculosis: An intermediate state between tuberculosis infection and symptomatic pulmonary tuberculosis defined as a state of disease due to viable Mycobacterium tuberculosis that does not cause clinical TB-related symptoms but does cause other abnormalities that can be detected using existing radiologic and microbiologic assays.

Transferred out: A patient who moved to a different jurisdiction and for whom the treatment outcome is not known.

Treatment completion (active tuberculosis): Treatment completed without **culture** at the end of treatment and therefore the case does not meet the criteria for **cure** or for **treatment failure**.

Treatment failure (active non-MDR/XDR-TB): Positive sputum cultures after 4 or more months of treatment or two positive sputum cultures in different months during the last 3 months of treatment, even if the final culture is negative and no further treatment is planned.

Treatment failure (active MDR/XDR-TB): Two or more of five cultures recorded in the final 12 months are positive, or any one of the final three cultures is positive, or a clinical decision has been made to terminate treatment early because of poor response or adverse events.

Treatment of tuberculosis infection (or TB preventive therapy or TPT): The provision of therapy to individuals with TBI to prevent progression to active disease; formerly termed treatment of latent TB infection.

Triage: In the context of TB infection control, a system for early identification of people suspected to have active TB, and prompt action to reduce the risk of transmission from them.

Tuberculin skin test (TST): Skin test to identify whether a person has **delayed-type hypersensitivity** reaction to tuberculin antigens.

Tuberculosis infection (TBI): The presence of latent or dormant infection with *Mycobacterium tuberculosis*. Patients with TBI have no evidence of clinically active disease, meaning that they have no symptoms, no evidence of radiographic changes that suggest active disease and negative microbiologic tests; they are noninfectious.

Tuberculosis disease: Active clinical disease that is usually symptomatic and for which microbiologic tests are usually positive and radiologic tests usually abnormal.

XDR TB: See **extensively drug-resistant tuberculosis.**

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