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Communicable Disease Control Manual

Chapter 4: Tuberculosis

2.0 DEFINITIONS



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Many of the definitions that follow are taken from the Canadian Tuberculosis Standards 7th ed. (2013). Adaptations have been made to enhance clarity and ensure consistency with other content in this manual. Note in many of the following definitions “TB bacteria” is used in place of *Mycobacterium tuberculosis* and other mycobacteria included in the *Mycobacterium tuberculosis* complex.

Acid-fast bacteria (AFB) (*bacilli*) – microorganisms that are distinguished by their retention of specific stains even after being rinsed with an acid solution. The majority of AFB in clinical specimens are mycobacteria, including species other than *Mycobacterium tuberculosis*.

Active TB disease – active clinical disease that is usually symptomatic. Microbiological tests are usually TB bacteria positive and radiologic tests are usually abnormal: also known as ‘TB disease’.

Atypical mycobacteria – see [nontuberculous mycobacteria](#)

Bacille Calmette-Guérin (BCG) – a live attenuated vaccine derived from *Mycobacterium bovis*. BCG is primarily used to prevent severe TB disease in children. BCG is currently used in several developing countries and in some areas of Canada. Detailed information on current and historical BCG use globally can be found at [BCG Atlas](#). For current and historical information on BCG Vaccine Usage in Canada, go [here](#).

Case – a person with clinically or laboratory confirmed active TB disease.

Cavitary TB disease – evidence on chest x-ray or pathology tests of lung destruction resulting in cavities or cystic areas that communicate with a bronchus. TB cavities generally contain large numbers of bacteria. Cases with cavitary TB disease tend to be highly infectious.

Clustered TB cases – two or more cases that have matching [TB genotypes](#) (“fingerprints”). A genotype cluster could indicate an outbreak is occurring, but most genotype clusters are not outbreaks.

Contact - a person exposed to an infectious case of active TB disease. Prioritizing contacts is an important component of TB prevention as it allows contacts at greatest risk of TB exposure and development of TB disease to be evaluated in a timely manner.

Contact Investigation (Tracing) – targeted screening of people exposed to active cases of TB. Indicated for cases with laboratory or clinically confirmed respiratory and pleural TB disease. It may also be recommended for people who likely have active respiratory TB based on clinical and epidemiological evidence. Once respiratory involvement has been ruled out, cases of nonrespiratory TB generally do not require extensive contact investigation.

Disseminated TB disease – active TB disease that affects three or more sites in the body; or where there is evidence (positive blood culture) of hematogenous dissemination of TB bacteria. See [miliary TB](#).

Drug resistance – in vitro determination that a TB bacteria strain is not inhibited by standard anti-TB drug concentrations.

Drug susceptibility testing (DST) – testing to determine which anti-TB drugs are likely to contribute to an effective treatment regimen.



Extensively drug-resistant tuberculosis (XDR-TB) disease – active TB disease caused by TB bacteria resistant to at least isoniazid and rifampin, and any fluoroquinolone, and at least one of three injectable second-line drugs (capreomycin, kanamycin and amikacin).

Extrapulmonary TB disease – sites of TB disease outside of 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. Note that this term is often used interchangeably with nonrespiratory TB disease, but the definitions are slightly different.

Equity-oriented care – an approach to addressing health inequities in practice by incorporating the principles of contextually-tailored care, trauma-and-violence informed care and culturally safe care.

High TB incidence countries/territories – Countries or territories where TB incidence (all forms, 3-year average), as estimated by the World Health Organization (WHO), measure 30 per 100,000 persons or higher. View [current international incidence rates](#).

High Burden Country (HBC) – To facilitate action on the [UN's Sustainable Development Goals](#) and the WHO [End TB Strategy](#), three lists were defined for TB, MDR-TB, TB-HIV for the period 2016-2020. Each list contains 30 countries and accounts for 85-89% of the global burden. View the three lists at [Stop TB](#).

Homeless/Underhoused - The homeless/underhoused risk factor should be reported if a client has had any of the following since their last negative TST or in their lifetime in the absence of TST history: any shelter stay; no fixed address; any stay in a Single Room Occupancy (SRO) hotel or supportive housing including Temporary Modular Housing, or use of services for homeless persons more than once per week (e.g., soup kitchen, drop in centre, homeless outreach worker or program).

Immune compromised – having the immune response attenuated by the administration of immunosuppressive therapy, malnutrition or by some disease processes (e.g., HIV Infection). In immune compromised individuals the immune system functions at less than normal capacity.

Infectious – the condition whereby a case can transmit infection to others by producing aerosols that contain TB bacteria. Smear-positive, cavitary pulmonary TB disease and laryngeal TB disease are considered the most infectious forms of TB disease.

Index case – the first or initial active case from whom the process of contact investigation begins. Note the distinction from [source case](#).

Interferon gamma release assay (IGRA) – in-vitro T-cell based assays that measure interferon- γ (IFN- γ) release in response to TB antigens; used to assist in the diagnosis of infection with TB bacteria. The significance of IGRA results are informed by clinical circumstances and reason(s) for testing.

Latent TB infection (LTBI) – is a state of persistent immune response to stimulation by TB bacteria without evidence of clinically manifested active TB. The TB bacteria are referred to as latent or dormant. People with LTBI have no evidence of clinically active TB disease and are not infectious. The diagnosis of latent TB infection involves assessment of risk factors, TST/IGRA results and imaging.

Location-based TB screening – identifying locations or sites where the case spent time while infectious and offering broad location-based TB screening at these sites. It is often more useful than the



traditional name-based approaches when infectious cases are unable to provide names or their social network is complex.

Mantoux tuberculin skin test – see [tuberculin skin test](#).

Miliary TB disease – disseminated TB disease with chest x-ray findings that include diffuse micro-nodules (see also [disseminated TB disease](#)).

Most responsible provider (MRP) – physician or nurse practitioner who has overall responsibility for the management and coordination of client care at any given time.

Multidrug-resistant tuberculosis (MDR-TB) disease – active TB disease caused by TB bacteria resistant to at least isoniazid and rifampin with or without resistance to other anti-TB drugs.

Mycobacteria other than tuberculosis (MOTT) – see [nontuberculous mycobacteria](#).

Mycobacterium tuberculosis complex – a group of mycobacteria that can cause TB disease in humans, specifically: *M. tuberculosis* (including subspecies *M. canetti*), *M. bovis*, *M. bovis* BCG, *M. africanum*, *M. caprae*, *M. microtic*, and *M. pinnipedii*. All except *M. bovis* BCG are included in the Canadian case definition of tuberculosis.

Nonrespiratory TB disease – refers to all other disease sites not included in the definition of respiratory TB. The definition overlaps with, but is slightly different from that of [extrapulmonary TB disease](#). Some sites of nonrespiratory TB disease include: peripheral lymph nodes (TB lymphadenitis), central nervous system (e.g., TB meningitis, tuberculoma), abdominal cavity and/or digestive system, genitourinary system, bones and/or joints. Nonrespiratory TB is generally not considered to be infectious once respiratory involvement has been ruled out.

Nontuberculous mycobacteria (NTM) disease – all mycobacterial species other than those that cause TB disease and leprosy. Also known as ‘atypical mycobacteria’ or ‘mycobacteria other than TB’ (MOTT). Common examples include: *M. avium* complex (MAC), *M. kansasii*, and *M. abscessus*.

Primary prophylaxis – see [window period prophylaxis](#).

Primary TB disease – active TB disease that develops *within* two years of infection with TB bacteria (see also [Reactivation TB disease](#)).

Proxy interview – an interview conducted with people (proxies) familiar with a case’s practices, habits, and behaviours.

Pulmonary TB disease – refers to TB disease of the lungs and conducting airways: includes TB fibrosis of the lung, TB bronchiectasis, TB pneumonia, and TB pneumothorax.

Reactivation TB disease – active TB disease that develops *more* than two years after infection with TB bacteria (see also [Primary TB disease](#)).

Respiratory TB disease – pulmonary TB disease, tuberculous pleurisy (non-primary) and TB disease of intrathoracic lymph nodes, mediastinum, nasopharynx, nose (septum) and sinus (any nasal). It is usually infectious and requires contact investigation.

Reverse contact investigation – see [source case investigation](#).



Secondary case – a person who is a contact to TB and infected with TB and then develops TB disease. Note that a case found among contacts is not necessarily a secondary case. For example, s/he could be a source case (the source of infection for an index case) or could have TB disease coincidentally. Clinical characteristics and [TB genotyping](#) can be helpful in making these distinctions.

Smear – a laboratory technique for preparing a specimen to allow bacteria to be seen using a microscope. Acid-fast bacilli (AFB) smearing is required to examine the prepared specimen for the presence of TB bacteria.

Social network analysis – a quantitative analysis of the social relationships between cases and contacts to identify settings and behaviours that characterize transmission events. Open-ended and focused questions about the nature of these settings and behaviours allow a richer understanding of transmission dynamics.

Source case – the original source of infection or exposure for [secondary case\(s\)](#) or infected contacts. The source case can be, but is not necessarily, the [index case](#).

Source case investigation – A type of contact investigation used to identify the source of infection (source case) for someone (usually a young child) recently infected with TB bacteria. Also known as 'reverse contact investigation'.

Symptomatic (signs/symptoms) – For active respiratory TB disease, fever, cough for 2 to 3 weeks or more with or without fever or phlegm, unexplained weight loss or failure to thrive, hemoptysis, loss of appetite, night sweats. See Section 4.7.6 for management of signs/symptoms consistent with active TB disease.

TB genotyping – a laboratory-based method used to identify the genetic pattern (genotype) of the TB bacteria strain that caused a case's TB disease. The method used in BC for TB genotyping is known as 24-locus MIRU-VNTR. TB genotyping results can be used to monitor the clustering of strains of TB bacteria by population and geography, to identify TB clusters or [outbreaks](#), to help with contact investigations, to differentiate between relapse and reinfection in people diagnosed with active TB disease more than once, and to help investigate for possible cross-contamination of laboratory specimens. Every new cultured TB isolate per patient per year will routinely undergo MIRU-VNTR genotyping.

TB outbreak– refers to situations where TB cases are higher than normal within a geographic area or population in a given time period **AND** there is evidence of recent TB transmission among the cases. Definitions vary by local context. A confirmed outbreak is often declared after the outbreak has begun and is determined by the local MHO in coordination with TBS and other HA's as needed.

Therapeutic drug monitoring (TDM) – monitoring of serum concentrations of TB drugs to ensure there are sufficient levels in the blood to be therapeutically effective while avoiding potential toxicity.

Tuberculin skin test (TST) – a test used to assist in the diagnosis of infection with TB bacteria by identifying whether a person has a delayed-type hypersensitivity reaction to tuberculin antigens. Also known as a 'Mantoux tuberculin test' or a 'Mantoux' since this universally recommended method consists of the intradermal injection of 5 tuberculin units of PPD in the forearm. The significance of TST results are informed by clinical circumstances and reason(s) for testing (see [Appendix A](#)).



Tuberculin conversion – an increase in the size of a tuberculin skin test (TST) reaction on repeated testing that reflects new TB infection (e.g., when contact investigation , initial TST <5mm and 8 weeks post-exposure TST >5mm). In general, the larger the increase, the more likely that it is due to true conversion: important to consider in planning for contact investigation.

Tumour Necrosis Factor alpha inhibitors (TNF α -inhibitors) – medications, often referred to as “biologicals” that block a key cytokine in the inflammatory response that leads to tissue damage in several diseases including rheumatoid arthritis, Crohn’s disease, psoriasis, psoriatic arthritis and ankylosing spondylitis. As this key cytokine is involved in granuloma formation, blocking its response has been associated with a significant increase in serious infections, such as tuberculosis.

Two-step TST – a tuberculin skin testing protocol used to establish accurate baseline results for people that have TSTs done at regular intervals (**NOT** the same as standard initial and 8-week post-exposure TST assessment done for contact investigation purposes).

Window period – the time between a contact’s last date of exposure to a case and when a TST or IGRA can reliably detect whether the contact is infected with TB bacteria. The definitive TST may be done at 8 weeks post-exposure.

Window period prophylaxis (WPP) - treatment during the window period to prevent primary TB disease in contacts at very high risk for progression to active TB disease. This is defined as contacts < 5 years old; people with HIV infection; transplant recipients on immune suppressing treatment; and other conditions in consultation with TB services, such as people with chronic kidney disease on dialysis or end-stage; people taking or about to start chemotherapy or TNF-alpha inhibitors or systemic corticosteroids (equivalent to \geq 15mg/day of prednisone for 2 weeks or longer). WPP is also known as ‘primary prophylaxis’.