



# Tuberculosis (TB) Tool Kit for LTCH/RH/CLS RVH IPAC Hub

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# WHAT IS TUBERCULOSIS (TB)

Tuberculosis (TB) is caused by mycobacteria called *Mycobacterium Tuberculosis*. TB usually attacks the lungs, but can also attack other parts of the body (i.e. spine, kidney, brain). TB spreads from person to person when someone who is sick with TB **disease** in the lungs coughs, sings, sneezes or talks. TB is a complicated disease. Not everyone who becomes infected with TB will develop TB disease.

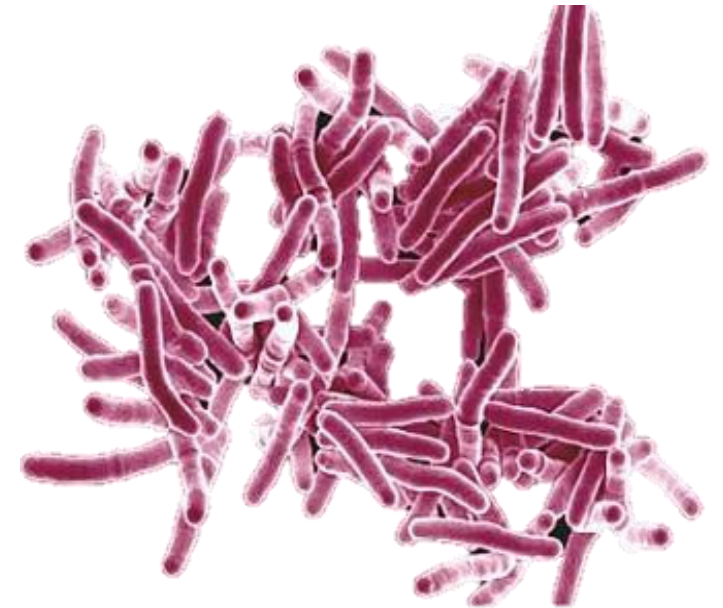
## TB Infection (TBI):

- TBI is also commonly known as latent TB infection or LTBI.
- Most people who breathe in droplets carrying *M. Tuberculosis* are able to stop the mycobacteria from growing. The immune system traps the TB mycobacteria and keeps them inactive (encapsulated). This is called TB infection (TBI).
- People with TBI do not feel sick and do not have any symptoms.
- You cannot pass on TBI to others (not infectious).
- There is treatment for TBI to prevent the infection from becoming a disease in the future.

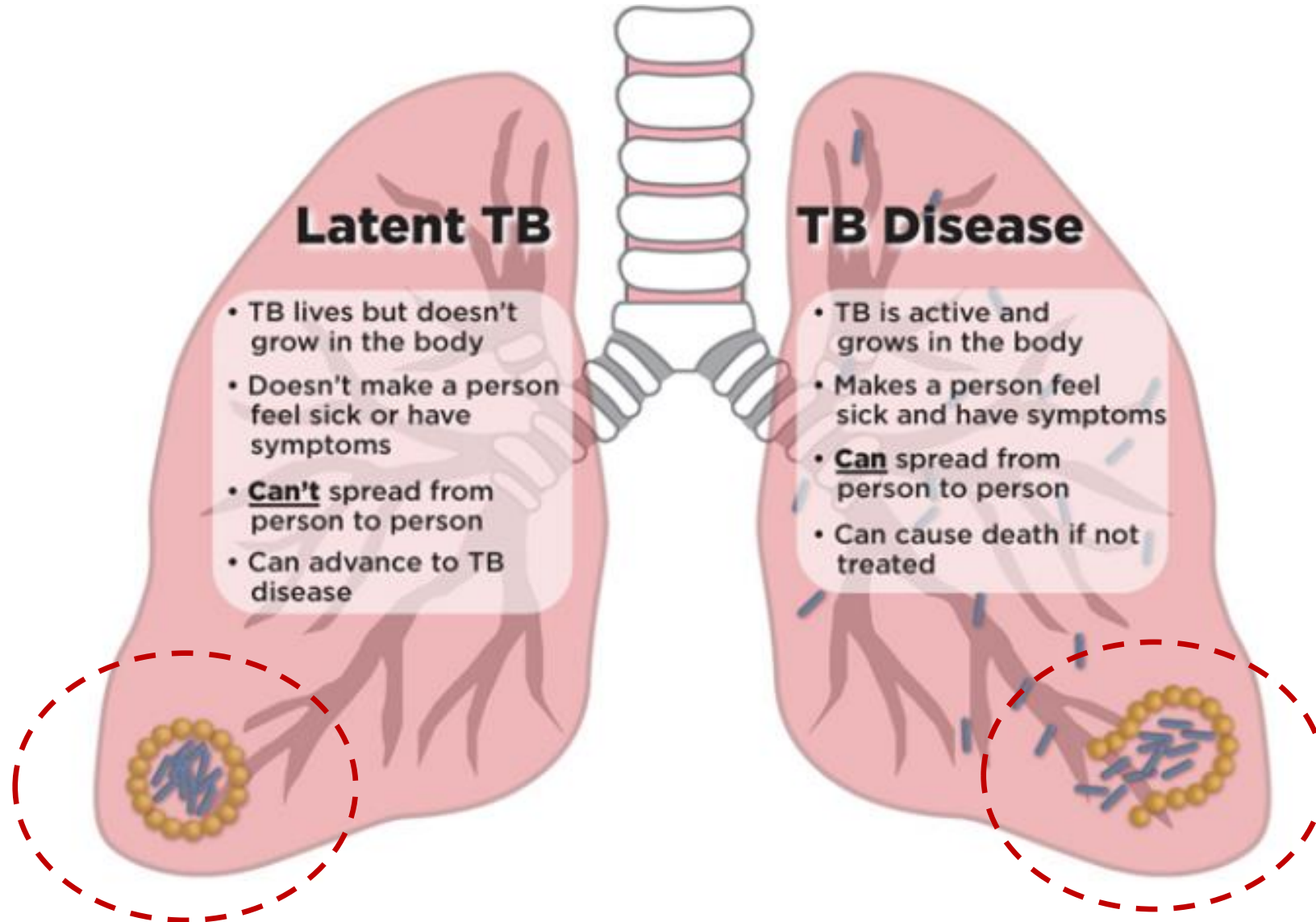
# WHAT IS TUBERCULOSIS (TB) CONT.

## TB Disease:

- TB mycobacteria become active if the immune system can't stop them from growing. When TB mycobacteria are active (multiplying in your body), this is called **TB disease**. People with TB disease are sick. They are also be able to spread TB to others.
- The highest risk of TB disease is within the first two years of becoming infected.
- About 5 to 10% of infected persons who do not receive treatment for TB infection (TBI) will develop TB disease at some time in their lives.
- If not treated properly, TB disease can be fatal.



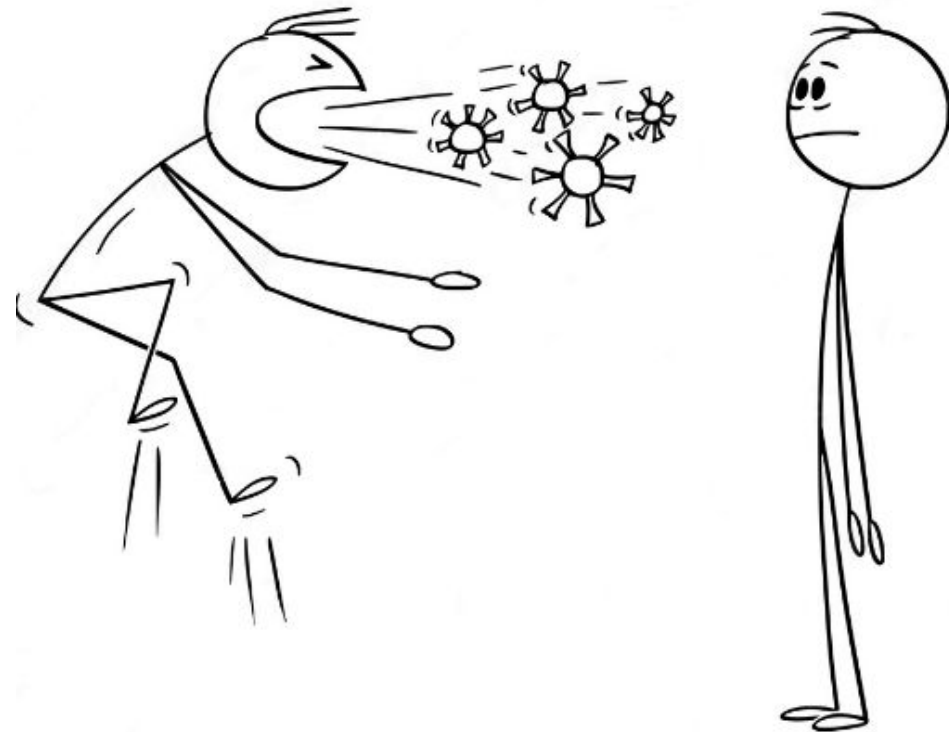
# TBI VS TB DISEASE



# SYMPTOMS

Symptoms of TB disease can include the following:

- Ongoing cough or chronic cough that keeps getting worse.
- Blood in the sputum, called hemoptysis (late sign) and/or coughing up phlegm.
- Chest pain.
- Weakness or tiredness.
- Unexplained weight loss.
- Fever and/or chills.
- Night sweats.



# WHO IS MOST AT RISK?

People most at risk of TB include those:

- With close contact to a known case of TB.
- Who have immigrated from areas of the world with high rates of TB.
- Who have visited/stayed (for longer periods of time) in countries with high rates of TB.
- Who smoke, heavily drink and/or use drugs.
- With certain diseases or conditions (i.e. HIV/AIDS, cancer, CKD, diabetes).
- Who have taken certain drugs/treatments that affect the body's immune system.
- Who are underweight (BMI <18.5).
- Who work/live with people who are at high risk for TB such as hospitals, homeless shelters, correctional facilities, nursing homes, residential homes, and other congregative living settings.

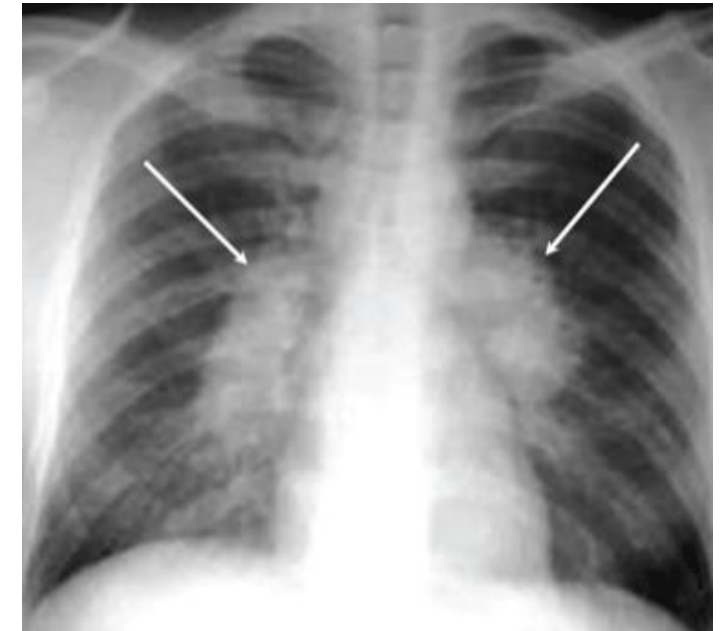
# DIAGNOSIS OF TB INFECTION (TBI)

- The primary goal of testing for TB infection is to identify individuals who are at **increased risk** for the development of TB disease and who therefore would benefit from TB preventive treatment.
- There are 2 types of tests to identify TB infection: Tuberculin skin test (TST) and the interferon-gamma release assay (IGRA).
- Both TST and IGRA cannot distinguish between TB infection and TB disease. For this reason, when someone tests positive with a TST and/or IGRA, further testing is required to rule out TB disease.



# DIAGNOSIS OF TB DISEASE

- At least 3 sputa (pleural for sputum) specimens should be collected and tested with microscopy as well as culture and PCR testing.
- Culture for *M. tuberculosis* is considered the **gold standard** in diagnosis.
- Acid-fast bacilli (AFB) on smear microscopy and/or culture (detection of *M. tuberculosis*).
- CXR is an important part of TB diagnostics, but cannot provide a conclusive diagnosis of pulmonary TB (PTB) on its own.
- The use of tuberculin skin test (TST) or interferon gamma release assays (IGRA) for the diagnosis of TB disease in adults is not recommended (cannot distinguish infection from disease; TBI vs TB disease).





# TRANSMISSION

*M. Tuberculosis* is transferred from one person to another by the aerosol route. The droplets in aerosols have a **VERY** slow settling rate (0.5 mm per second or less), which allows them to transport by air currents and duct systems, otherwise known as **Airborne** transmission.

Aerosolized droplets can spread from person to person through:

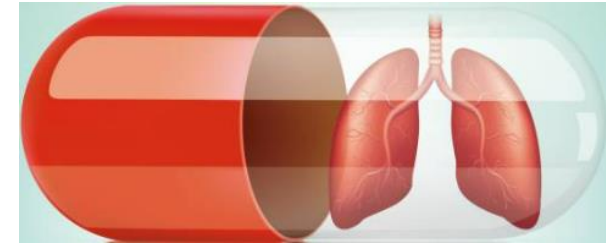
- Coughing
- Sneezing
- Singing
- Playing a wind instrument
- Talking (to a lesser extent)

Now, imagine TB mycobacteria settling at a rate 3-5x slower than the demonstration on your screen (roughly 3 centimeters per minute). TB mycobacteria has the ability to stay suspended in the air for extended periods of time compared to large droplets (i.e. respiratory droplets like RSV and Influenza).



# TREATMENT OF TB INFECTION (TBI)

## For TB preventive treatment (TPT):



- Either once-weekly Rifapentine and Isoniazid for 3 months, or daily Rifampin for 4 months is recommended.
- When Rifamycin based regimens cannot be used because they are not tolerated, not feasible, or are contraindicated, 9 months of daily isoniazid regimen is the preferred option.
- If the client/resident is not willing to take isoniazid for 9 months, 6 months of daily isoniazid is also an acceptable alternative.

# TREATMENT OF TB DISEASE

Tuberculosis is treatable. **Most** patients with TB disease in Canada should be treated initially with the following:

- Isoniazid (INH)
- Rifampin (RMP)
- Pyrazinamide (PZA)
- Ethambutol (EMB)



If the disease is fully susceptible to all first-line drugs:

- INH and RMP can be given for the remainder of treatment (after the first two months), usually for another 4 months.
- Treatment can be isolating, take months (6-9 months or longer) and require directly observed therapy (DOT) to ensure compliance with treatment (prevent drug resistant TB).

## DID YOU KNOW?

Ontario's *Health Protection and Promotion Act* (HPPA) provides the legislative mandate for Public Health Units. The Medical Officer of Health (MOH) can issue **communicable disease orders** under section 22 of the HPPA.2.

The legislation gives:

- The MOH the authority to issue orders for appropriate treatment and medical follow-up against anyone who may have a communicable disease, such as TB, and who is putting others at risk

## DID YOU KNOW? (CONT.)

When a person who has a communicable disease (Tuberculosis) fails to comply with certain provisions in a section 22 order such as:

- Isolate himself or herself and remain in isolation from other persons;
- Submit to an examination by a physician;
- Place himself or herself under the care and treatment of a physician; or
- Conduct himself or herself in such a manner as not to expose another person to infection, the MOH may apply to a judge of the Ontario Court of Justice to issue an order under section 35 of the HPPA.2

Under section 35, a judge may order the person who has failed to comply with the section 22 order of the MOH:

- To be taken into custody and admitted to and detained in a hospital or other appropriate facility named in the order;
- To be examined by a physician to ascertain whether or not the person is infected with an agent of a virulent disease; and
- To be treated for the disease if found, on examination, to be infected with an agent of a virulent disease.

# ADDITIONAL PRECAUTIONS AND PPE

- Suspected or confirmed cases of TB **must** be placed on **Airborne Precautions** in an **Airborne Infection Isolation Room (AIIR)**.
- Transfer to an appropriate facility with an **AIIR**.
- Fit-tested N95 respirator required when entering the residents room, in addition to your PCRA and routine practices.
- Staff who are not fit-tested for a N95 respirator should not enter the room.
- Resident **must** wear a procedure mask outside of the room.



**STOP** Airborne Precautions

**Clean Your Hands Often** 

For more information please contact the Care Team or Infection Prevention and Control

In addition to Routine Practices:

**Care Team**  
(when inside room)

 **Wear fit-tested N95 respirator**

 **Keep door closed**

**Visitors**

**STOP** Check with nursing station before entering room

**Residents**  
(if necessary to be outside room)

 **Wear procedure mask**

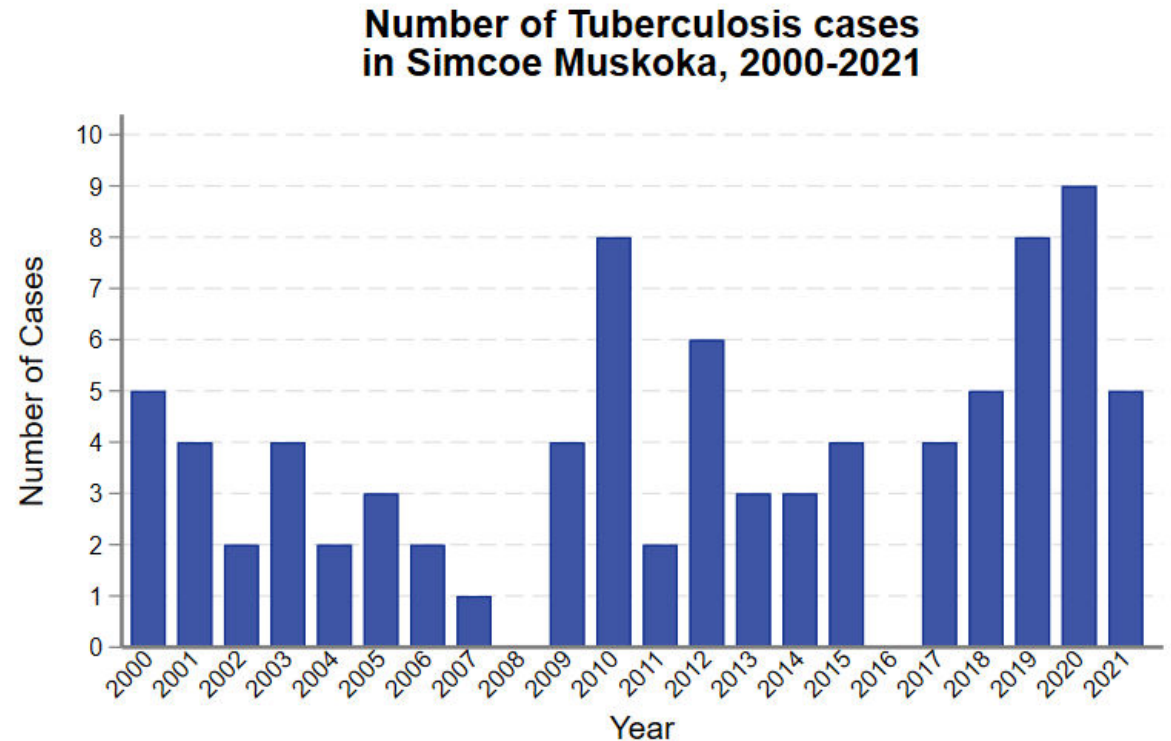
# IPAC CONSIDERATIONS

- Education on respiratory and cough etiquette for staff and residents
- Role of the Public Health Nurse (case and contact management, directly supervises treatment, and provides information and education on TB medication and support resources).
- In Ontario, the *Long Term Care Homes Act* (LTCH Act) mandates that LTCH residents be screened for TB on admission. This includes a history and physical by a physician/nurse practitioner within 90 days prior to admission or within 14 days after admission.
- Recommendations for TB screening in LTC/RH settings:

[recommendations-for-ltch-retirement-home-tb-screening2023final5d71086097be6bc38c2dff0000a8dfd8.pdf](https://www.simcoemuskohealth.org/files/2023/05/recommendations-for-ltch-retirement-home-tb-screening2023final5d71086097be6bc38c2dff0000a8dfd8.pdf) (simcoemuskohealth.org)

# SURVEILLANCE AND REPORTING

- **All** confirmed and suspect cases of Tuberculosis (TB) are reportable to the Simcoe Muskoka District Health Unit (SMDHU).
- TB is a legally reportable disease in every Canadian province and territory.
- **Timely reporting of *Diseases of Public Health Significance*** is mandated and essential for their control.



Data Source: Integrated Public Health Information System (IPHIS) [2000-2021]. Ontario Ministry of Health, extracted 26 Jul 2022  
Note: Includes confirmed cases by diagnosis date. Case definition updated in 2009 and 2015.



# CLEANING AND DISINFECTION

## Bleach (Sodium hypochlorite):

Bactericidal, fungicidal, virucidal, mycobactericidal.



## Alcohol (60%-80%):

Bactericidal, fungicidal, virucidal, mycobactericidal.



## Improved Hydrogen Peroxide 0.5%:

Fungicidal, virucidal, mycobactericidal.



For more information on cleaning and disinfection products for healthcare settings:

[Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings, 3rd Edition](#)

## REFERENCES

1. Government of Canada. *For Health Professionals: Tuberculosis (TB)*. Available at: <https://www.canada.ca/en/public-health/services/diseases/tuberculosis-tb/health-professionals-tuberculosis-tb.html>. Accessed April 27, 2023.
2. *Health Protection and Promotion Act*, RSO 1990, c H.7. Available at: <https://www.ontario.ca/laws/statute/90h07>. Accessed April 30, 2023.
3. Government of Canada. *Canadian Tuberculosis Standards*. 8th ed. Available at: <https://www.canada.ca/en/public-health/>. Accessed May 1, 2023.
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# QUESTIONS

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