

Trends in Tuberculosis (TB)

To: Chair and Members of the Board of Health

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Recommendations

It is recommended that the Board of Health receive this report for information.

Key Points

- Tuberculosis (TB) infections in Wellington Dufferin Guelph (WDG) region increased significantly in 2023;
- Wellington Dufferin Guelph Public Health's (WDGPH) TB program has implemented program changes to meet the increased demand; and
- WDGPH TB program will continue to innovate to provide improved TB care in the WDG region.

Background

Tuberculosis (TB) is a serious but curable infectious disease caused by the bacterium *Mycobacterium tuberculosis*. TB infections are spread through the air after prolonged contact with an infectious individual through coughing, sneezing, or talking. TB infections primarily attack the lungs but can also affect other parts of the body, including the kidneys, spine, lymph

nodes or the brain. The clinical presentation of TB infections varies, but typically individuals have a cough that lasts two weeks or longer, fatigue, weight loss, and fever. TB infections can be *latent* (inactive), which are not contagious, or *active*, which can be transmitted from person to person (Appendices A and B). Individuals with latent TB are at risk for developing active TB later in life. Latent and active TB infections require different clinical management.

Canada has one of the lowest rates of TB infection in the world, but the disease which killed 1.3 million people worldwide in 2022, has not been eliminated.¹ In Canada, Indigenous and immigrant populations are disproportionately affected by TB infections. In 2021, Canada announced that 76.7 % of active TB infections were reported in individuals born outside of Canada, 16.9% were reported in the Indigenous population and 3.6% were in the non-Indigenous population.²

Discussion

The WDGPH TB program works diligently to support its clients with this disease and to prevent its spread in the WDG region. This includes:

- Investigating active TB infections and their close contacts;
- Ensuring that active TB infections and their contacts isolate and are connected to a treating physician as required;
- Assessing individuals referred to WDGPH for medical surveillance following their immigration medical exam;
- Providing directly observed therapy (DOT) and virtual DOT (VDOT) for individuals receiving treatment; and
- Operating a TB clinic staffed by physician specialists and public health nurses, to provide capacity for TB assessment and management within the community.

The rates of TB infections in the WDG region in 2012, 2022 and 2023 are outlined in Table 1. There has been a dramatic increase in medical surveillance, latent TB infections and active TB infections in the last 3 years. Although the WDGPH TB program continued to screen and treated clients throughout the COVID-19 pandemic, testing in the community was greatly reduced which, along with an increase in the number of new Canadians in the WDG community, can account for this increase.

Table 1: Rates of TB Infections in WDG Region 2021-2023

Year	Medical Surveillance	Latent Infections (Untreated)	Latent Infections (Treated)	Active Infections
2021	53	89	22	6
2022	77	132	17	6
2023	125	261	59	12

The WDGPH TB program provides support to both community physicians and immigration services within the WDG region to diagnose and treat TB infection. TB infections are diagnosed with a variety of tests including tuberculin skin tests (TST), interferon gamma release assay (IGRA) and chest x rays (CXR). Positive TST, IGRA and concerning CXR are reported to the TB team for further assessment. Once referrals are received, further testing, specifically sputum samples, is conducted, and all the cases are reviewed for potential referral to TB clinic.

Physicians working in the WDGPH TB clinics diagnose clients with either latent or active TB infection and the clients receive appropriate treatment based on their specific diagnosis. Since clients with latent TB infection may progress to develop active TB, they are generally offered treatment. Compared to people with active TB, they require a shorter treatment regime and fewer types of medications. The WDGPH TB program expanded their clinics in 2023 by onboarding an additional physician and increasing the number of TB clinics offered.

Clients with active TB infection need a significantly longer treatment period, which can range from six months to two years or longer, and a greater variety of medications. Additionally, because of the risk of drug intolerance or resistance, clients diagnosed with active TB infection are managed with DOT or VDOT to ensure compliance with medications. Staff from the TB team meet with clients who are starting treatment for active TB infection daily, seven days a week, until it is determined that the client is tolerating and can consistently take their medications safely.

Previously, the staff of the TB team dispensed all medication to clients requiring treatment for TB infection. In 2023 the TB team partnered with a local pharmacy to support the dispensing process. This partnership has been an enormous success which has streamlined the dispensing process and as result, has freed up valuable nursing time which in turn can be focused on direct client care.

Besides requiring a longer treatment period, clients with active TB infections are required to isolate until they are no longer infectious. The length of time that clients are obligated to isolate depends on how they respond to treatment. Sometimes clients need to isolate for months and as mentioned previously immigrant populations are the main population impacted by TB infection in the WDG region. The clients of the WDGPH TB program often lack extended family and therefore require significant emotional support with their treatment and with navigating the local health care and social services systems.

Regardless of all the challenges facing them, the WDGPH TB program achieved 100% compliance for all clients with active TB infections in 2023 and 75% compliance for clients with latent infections.

Health Equity Implications

Health equity means that all people can reach their full health potential and should not be disadvantaged from attaining it because of race, ethnicity, religion, gender, age, social class, socioeconomic status, geography or other socially determined circumstance.³

Many individual risk factors and the social determinants of health impact TB disease development.

Personal risk factors that greatly increase the risk of developing TB include smoking, alcohol or substance use, chronic diseases such as diabetes or HIV and medications that impair the immune system.

Social determinants of health such as poverty, food insecurity, overcrowded or inadequate housing all significantly contribute to the development of TB.

Conclusion

Even though TB is a treatable disease it remains a global threat. The WDG region is fortunate to have low prevalence rates, but it is not free of the disease. The WDGPH TB program is focusing on the following three projects in 2024.

Think, Test, and Treat: The WDGPH TB program will continue to educate and support its community health care providers to **think** of TB as a potential diagnosis when assessing clients with the symptoms of TB infection. WDGPH will continue to provide low barrier access to TST **testing** and timely referrals to the TB team for further assessment and **treatment**.

Continue to Innovate: The WDGPH TB team will continue to look for exciting ways to partner with colleagues, community agencies and business to provide streamlined, efficient TB care. The program hopes to begin offering clients 3PH, a new type of TB treatment, in 2024.

End stigma associated with TB: By promoting TB Awareness Day annually on March 24, the WDGPH TB team will work towards breaking down barriers that prevent people from seeking assessment and treatment for TB, especially those who have negative cultural connotations of TB infection.

Ontario Public Health Standards

Foundational Standards

- Population Health Assessment
- Health Equity
- Effective Public Health Practice
- Emergency Management

Program Standards

- Chronic Disease Prevention and Well-Being
- Food Safety
- Healthy Environments
- Healthy Growth and Development
- Immunization
- Infectious and Communicable Diseases Prevention and Control
- Safe Water
- School Health
- Substance Use and Injury Prevention

2024-2028 WDG Public Health Strategic Goals

More details about these strategic goals can be found in [WDGPH's 2024-2028 Strategic Plan](#).

- Improve health outcomes
- Focus on children's health
- Build strong partnerships
- Innovate our programs and services
- Lead the way toward a sustainable Public Health system

References

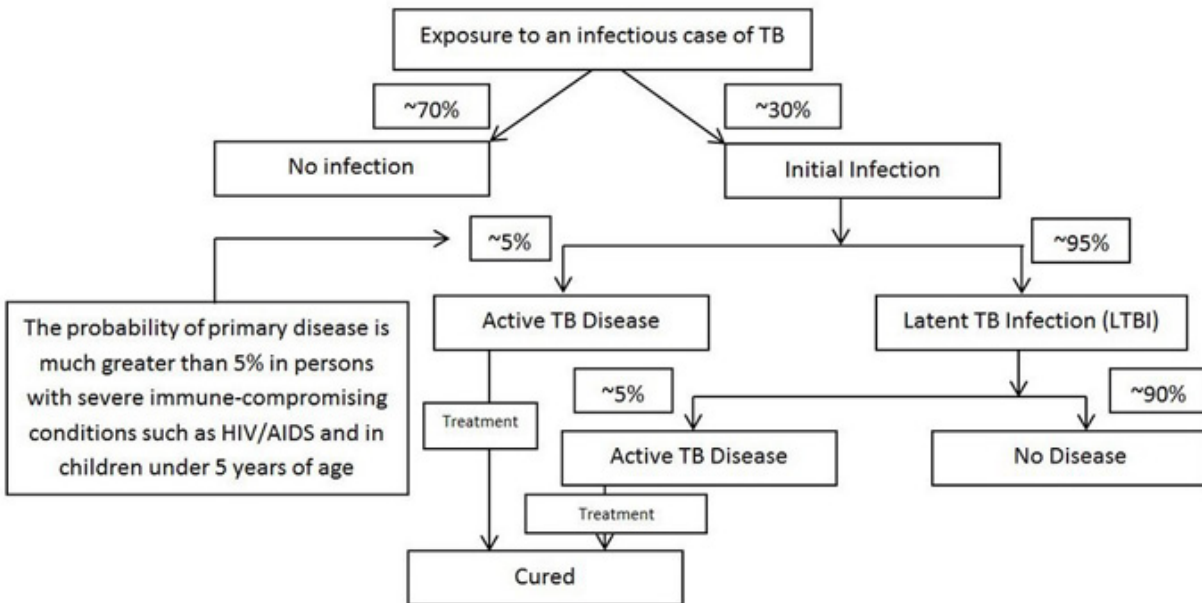
- (1) Global Tuberculosis Report. (2023) World Health Organization.
- (2) Tuberculosis (TB) Monitoring. Government of Canada
- (3) Campbell JR, Faust L, Paulsen C, Heffernan C. The state of tuberculosis surveillance in Canada. *Can J Public Health*. 2023 Aug;114(4):671-675. doi: 10.17269/s41997-023-00767-4. Epub 2023 Apr 4. PMID: 37014575; PMCID: PMC10072031.
- (4) Canadian Tuberculosis Standards, 7th Edition; and Shaler, C. R., Horvath, C., Lai, R., & Xing, Z. (2012). Understanding delayed T-cell priming, lung recruitment, and airway luminal T-cell responses in host defense against pulmonary tuberculosis. *Clinical and Developmental Immunology*, 2012.
- (5) National Collaborating Centre for Determinants of Health. (2013). *Let's Talk: Health equity*. Antigonish, NS: National Collaborating Centre for Determinants of Health, St. Francis Xavier University.
- (6) The Time is Now-Chief Public Health Officer spotlight on eliminating tuberculosis in Canada. (2018). Public Health Agency of Canada

Appendices

Appendix A

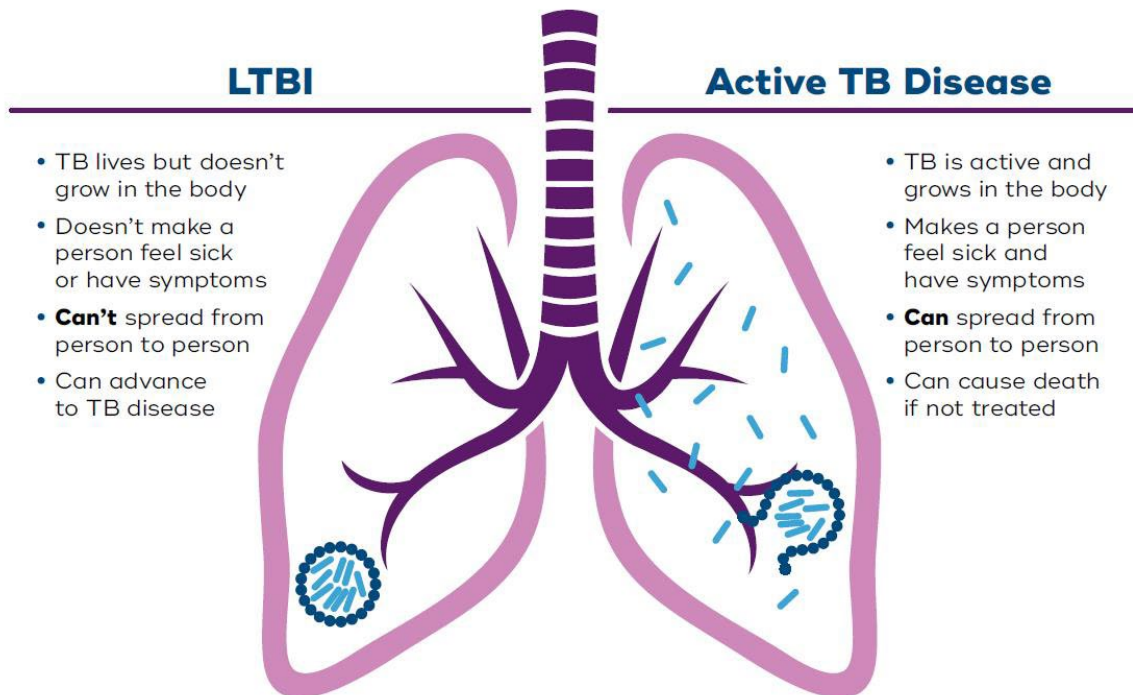
Appendix B

Appendix A



Sources: adapted from the Public Health Agency of Canada. (2014). Canadian Tuberculosis Standards, 7th Edition; and Shaler, C. R., Horvath, C., Lai, R., & Xing, Z. (2012). Understanding delayed T-cell priming, lung recruitment, and airway luminal T-cell responses in host defense against pulmonary tuberculosis. *Clinical and Developmental Immunology*, 2012.

Appendix B



Latent TB Infection

- TB lives but doesn't grow in the body
- Doesn't make a person feel sick or have symptoms
- **Can't** spread from person to person
- Can advance to active TB disease

Active TB Disease

- TB is active and grows in the body
- Makes a person feel sick and have symptoms
- **Can** spread person to person
- Can cause death if not treated

Source: adapted from Kanabus, A. (2017). Information about Tuberculosis. Global Health Education.