BUREAU DE SANTÉ DE MIDDLESEX-LONDON HEALTH UNIT

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Healthcare Provider Webinar

Middlesex and London Region

November 1, 2022

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Welcome

Presenter:

Dr. Alex Summers

Medical Officer of Health

Middlesex-London Health Unit

@alexsummers4

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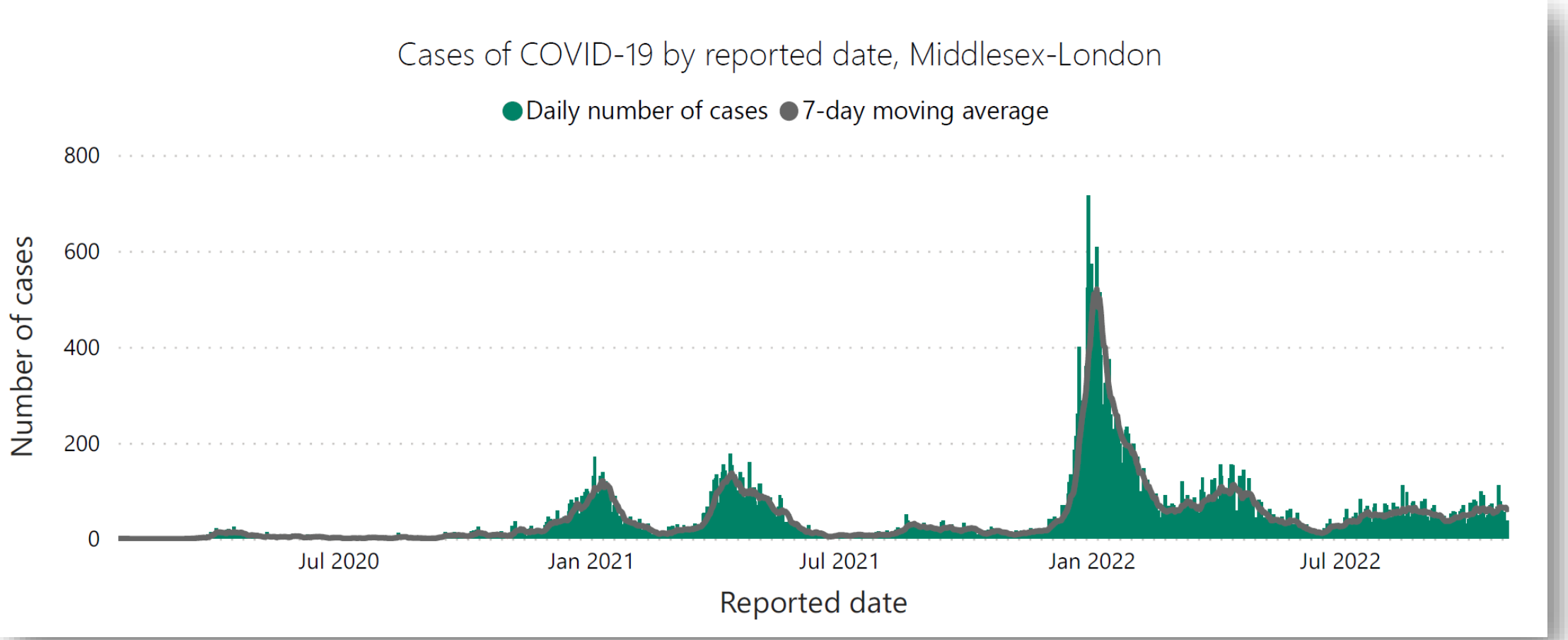
Cases by Reported Date



Data source: Ontario Ministry of Health (Ministry) *Public Health Case and Contact Management Solution* (CCM), extracted 2022-11-01. Data current as of the end of day 2022-10-31.

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eNewsletter & HCP webinar schedule for November/December

- We will continue with the bi-weekly schedule for the upcoming months
- However, due to holidays, there are some exceptions:
  - **No eNewsletter or webinar** on Tuesday, November 29th
  - Resume eNewsletter & webinar on Tuesday, December 6th
  - **eNewsletter ONLY** on December 20th

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Post-Acute COVID-19 Clinic

- St. Joseph's Health Care *Post-Acute COVID-19 Clinic* is now accepting referrals from **primary care**.
- Criteria for clinic (**ALL** must be met):
  - 18 years and older, from London-Middlesex
  - Confirmed COVID-19 infection (PCR, RAT, Antibody Testing)
  - Cumulative of **≥12 weeks** of on-going or intermittent symptomatology post COVID-19 infection**.**
    - ***Not be accepting patients whose symptomatology is due to a pre-existing **non-cardiopulmonary** health condition, exacerbated by COVID-19
  - Basic differential workup and imaging has been started to rule out other potential aetiologies
  - Support is not being received elsewhere for these concerns (other specialists, WSIB, etc.)
  - Referral form and more information available at: **www.sjhc.london.on.ca/areas-of-care/post-acute-covid-19-program** (linked in eNewsletter)

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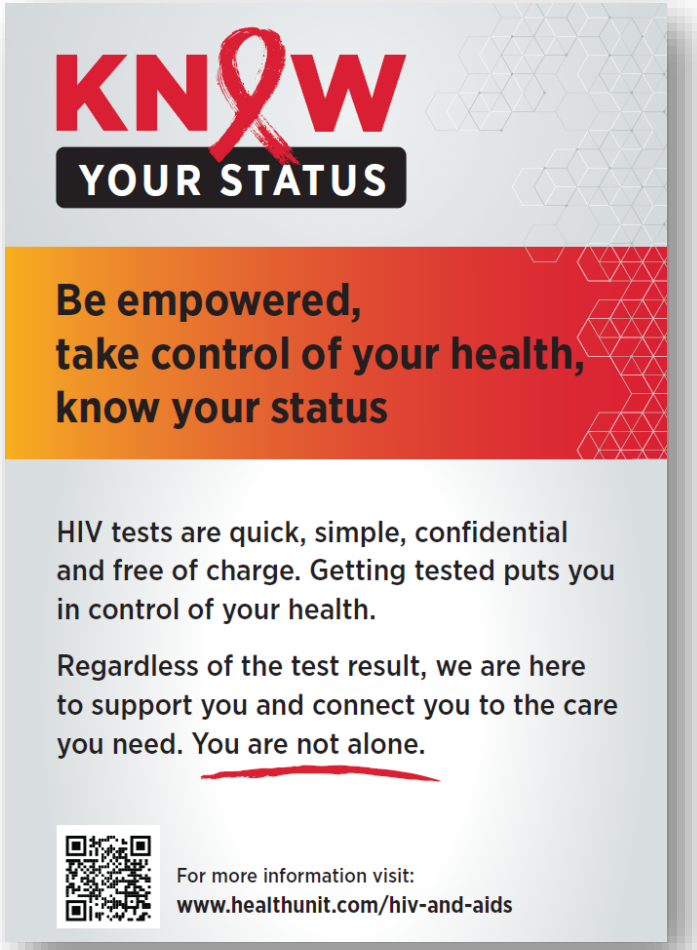
Know Your Status: CME accredited HIV Testing Webinar in November

- Shaya Dhinsa, RN & MEd, and Darryl Ntow, RN, from MLHU's Sexual Health Team are hosting a **CME accredited webinar** that includes a review of the *Know Your Status* campaign & the importance of the role of healthcare provider and HIV testing
- Webinar objectives include:
  - Why are we trying to increase HIV testing?
  - Who should HIV tests be ordered for?
  - What is the consent process?
  - How do I respond to a patient who has questions about getting tested?
  - Test result responsibilities
- To **register**, please click on the date you are interested in through **today's eNewsletter (November 22nd from 12noon-12:30pm** *or* **November 30th from 7:30-8pm)**
- The *Know Your Status* campaign poster is available to order; to request a poster for your office/clinic, please email healthcareproviders@mlhu.on.ca and include:
  - your name, office address, hours for delivery, and quantity



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Additional dates for Baby-Friendly Initiative Course now available

- One-day practice workshop to support best practices in the care of prenatal and postpartum women and families around infant feeding
- Available dates:
  - Thursday, November 17
  - Wednesday, November 30
  - Wednesday, February 1
  - Thursday, March 23
- Link to register is available through the eNewsletter

Where: BMO Centre, 295 Rectory St. London
Room D (second floor, follow signs)
Free parking available

Cost: $30 (lunch will be provided)

When: 8:30 am – 4:30 pm

To register, click on the date you would like to attend:

Thursday November 17, 2022
Wednesday November 30, 2022
Wednesday February 1, 2023
Thursday March 23, 2023

Completion of the RNAO Breastfeeding E-Learning Course is required prior to the workshop. Attendees will receive details upon registration.

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Monkeypox vaccine updates

- The Ministry has provided updated guidance for Imvamune®; it should now be offered as a **two-dose primary series** for those currently eligible for pre- or post-exposure vaccination
- For eligibility criteria and vaccination clinic dates and times, please visit: www.healthunit.com/monkeypox
- Appointments can be made by calling **226-289-3560**

Ministry of Health

Monkeypox Vaccine (Imvamune®) Guidance for Health Care Providers

Version 3.0 – September 30, 2022

This guidance provides basic information only. This document is not intended to provide or take the place of medical advice, diagnosis or treatment, or legal advice.

Ontario continues to monitor for cases of monkeypox and is working collaboratively with health care providers, Public Health Ontario (PHO) and the Public Health Agency of Canada (PHAC) to address health risk(s). New guidance will continue to emerge as new information becomes available and the epidemiology of this situation evolves.

Visit https://www.health.gov.on.ca/en/pro/programs/emb/monkeypox.aspx for more information

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Influenza vaccine orders & temperature log submissions

- Healthcare providers can now re-order influenza vaccine online using the new Public Health Ordering System (PHOS).
  - To register for PHOS, please complete the online registration form available through the eNewsletter.
  - The registration form should only be completed by your organization's primary vaccine contact.
- Orders can also be submitted by e-mail using the Influenza Vaccine Order Form.
- All orders of influenza vaccine **must be accompanied by at least 2 weeks of the most recent temperature logs**.
- Vaccines must be stored between **2-8 degrees Celsius**. Notify the health unit **immediately** of any temperature excursions/cold chain incidents, even on the weekend, by calling 519-663-5317.

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Influenza vaccine eligibility

- Starting today, **all** individuals 6 months of age and older in Ontario will become eligible for their influenza vaccine; available through family doctors, walk-in clinics, or pharmacies.
- Pharmacies can provide flu shots to individuals 2 years of age and older, with or without an Ontario Health Card.
- Individuals 6 months to 64 years old are eligible for any of the publicly funded, standard dose quadrivalent inactivated influenza vaccines.
- Individuals 65 years+ are eligible for any of the following products:
  - Fluzone High Dose Quadrivalent Inactivated Vaccine (HD-QIV) (preferred products for those 65 years+)
  - Fluad Trivalent-Adjuvanted Inactivated Vaccine (TIV-Adj.) (preferred products for those 65 years+)
  - Standard dose quadrivalent inactivated vaccine (QIV)*
- *Standard dose QIV can also be given if QIV high-dose or TIV-Adj products are not available (it is anticipated that the supply of HD-QIV will be depleted over the next several weeks). *Influenza vaccination should not be delayed waiting for a certain product!*
- For more information, please visit: www.healthunit.com/influenza-for-healthcare-providers

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Latent TB Infection

Dr. Danielle Ouellette
Infectious Diseases Fellow
Western University

Objectives

- Pathogenesis: primary TB vs latent TB vs reactivation TB
- Screening for LTBI – who needs it
- Screening for LTBI - how to do it
- Positive screen for LTBI – next steps
- Treatment of LTBI – regimens and monitoring
- Patient counselling
- Reporting to Public Health

M. tuberculosis (MTB)

- Slow-growing, acid-fast bacilli that is typically acquired by inhalation of small droplet nuclei (1-5 microns) that are small enough to enter the alveoli
- Only a few mycobacteria are needed to cause infection
- Once inside the lungs, alveolar macrophages swallow the MTB and (hopefully) quickly destroy the mycobacteria
- If this happens → no persistent viable mycobacteria → no latent TB infection → no risk of reactivation
- Also, immunologic tests for LTBI are negative in these patients

Primary TB

- In some cases, MTB escape the alveolar macrophages and can disseminate through the blood/lymphatics to distant sites
- Patients newly infected with TB that are unable to control the initial infection go on to develop **early primary TB**
- Occurs between 2-24 months post-exposure
- Involve the lungs or any other site in the body (truly, anywhere)
- Immunocompromised, extremes of age at greatest risk

Latent TB Infection (LTBI)

- Most people with normal immune systems will eventually be able to control but not eradicate the MTB
- Over the course of 3-8 weeks, MTB-specific lymphocytes are recruited to the lungs (and other sites) and help to “wall off” the TB in granulomas
- MTB can exist in dormant, hypometabolic state for years
- **Lifetime reactivation risk ~5-15%** but significant variation
- ↑ **risk reactivation**: younger and older age, genetic factors, immunosuppression, malnutrition, etc.

Reactivation TB

- In Canada, most active TB is reactivation of latent TB rather than early primary TB
- Weakening of the immune system → loss of immune tolerance → MTB to escape granuloma and “wake up” → metabolically active, dividing, disseminating → active TB disease
- Classically, presents with pulmonary involvement with upper lung zone fibrocavitary disease and constitutional symptoms
- Be aware that reactivation TB can involve any body site and pulmonary reactivation can have secondary dissemination

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Taken from: Canadian TB Standards (8th edition)

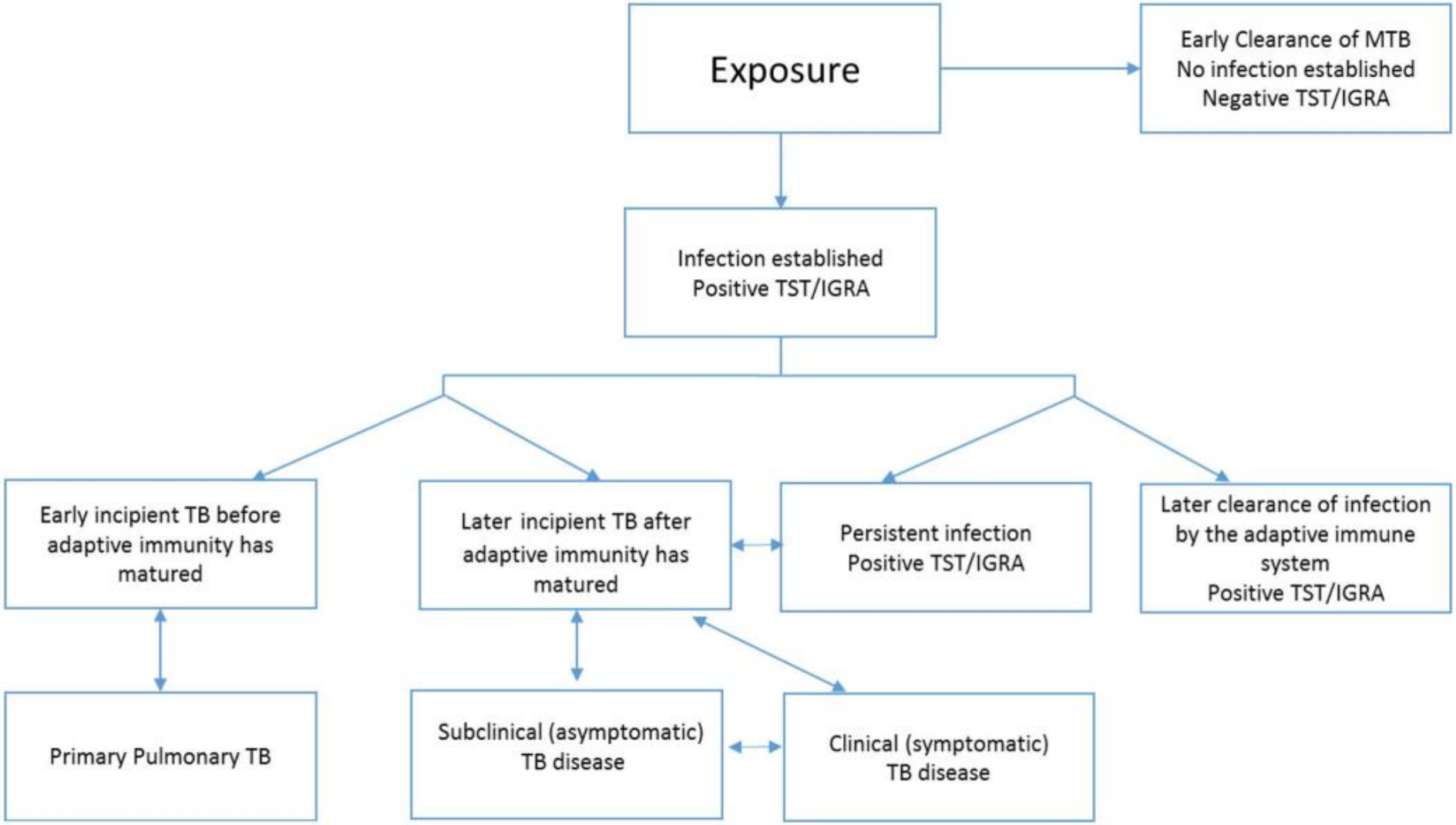

Figure 1. Contemporary understanding of the pathogenesis of tuberculosis (TB) infection and disease. Abbreviations: MTB, Mycobacterium tuberculosis; TST, tuberculin skin test; IGRA, interferon-gamma release assay.

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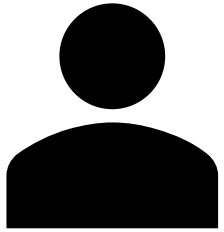
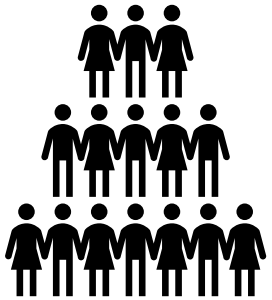
Why do we screen for LTBI?



Primary goal:

Identify those at high risk for reactivation who would benefit from LTBI treatment

- *Individual benefit to the particular patient*



Secondary goal:

Reduce the incidence of reactivation TB and subsequent spread to others in the community

- *Broader benefit to society-at-large*

Who to screen for LTBI?

Canadian TB standards (8th ed.) gives good advice on this point:

"If testing for [latent] TB infection is performed, there must be an *a priori* commitment to providing [treatment of latent TB infection] or active monitoring should test results be positive.

In general, testing for [latent] TB infection should consider patient preferences toward treatment and is indicated when there is expected individual benefit from [treatment of latent TB infection]"

Who to screen for LTBI?

Patient has…

- Significant risk of prior TB exposure
- Significant risk of progression to active TB
- Willingness to complete LTBI treatment
- No major contraindications to LTBI treatment

Note: although in general LTBI treatment is riskier in older individuals and the potential benefit lower (fewer years of life remaining for TB to reactivate), the decision to treat should be individualized and there is no absolute age cut-off

Who to screen for LTBI?

- Those with **known exposure** to active TB*
- Those with **increased risk of exposure** to active TB*, e.g. HCWs
- **Immunocompromised** patients
  - HIV
  - Pre-solid organ transplant
  - Pre-biologics (and other significantly immunosuppressing medications)
  - ?End-stage renal disease, especially pre-dialysis initiation
  - ?High-risk cancers/chemotherapy (leukemia, lymphoma, lung, H&N)

Who to screen for LTBI?

Among **foreign-born** individuals, it's complicated.

- YES: Very high risk of TB reactivation (all ages, all countries)
- YES: High risk of TB reactivation from country with TB incidence ≥ 50/100,000 (all ages)
- YES: Refugees ≤ 65 years from country with TB incidence ≥ 50/100,000 (as soon as possible but up to 2 years post-arrival)
- YES: Low to moderate risk of TB reactivation ≤ 65 years from country with TB incidence ≥ 200/100,000
- NO: no risk factors for reactivation and from country with TB incidence ≤ 50/100,000

How to screen for LTBI?

- Two main tests: **TST** or **IGRA**
- Both immunologic tests assessing previous exposure to TB
- Both considered acceptable per Canadian TB standards
- Neither can distinguish LTBI from active TB disease
- Some pitfalls and positives for each test

TST (Mantoux test)

- Measures delayed hypersensitivity reaction to TB antigen
- Intradermal injection of 0.1 mL purified protein derivative (PPD)
- After 48-72H measure **transverse diameter of induration** (mm)
  - Not induration in vertical dimension
  - Not size of erythema or bruising
  - Not if accidentally given subcutaneous/intramuscular → redo, other arm
- Cut-off for “positive” TST depends on patient factors
- Two-step TST generally limited to those who will get regular TST for ongoing screening (e.g. HCWs) and is only done ONCE

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TST Interpretation

TST result	Situation in which result is considered positive
0-4 mm	Generally considered negative
≥ 5 mm	People living with HIV Known recent (<2 years) contact with patient with infectious TB disease Fibronodular disease on chest x-ray (evidence of healed, untreated TB) Prior to organ transplantation/receipt of immunosuppressive therapy Prior to receipt of biologic drugs (e.g. anti-TNFα), or DMARDs Prior to receipt of other immunosuppressive drugs, e.g. corticosteroids (equivalent of ≥ 15 mg/day of prednisone for ≥ 1 month) Stage 4 or 5 chronic kidney disease (with or without dialysis)
≥ 10 mm	Recent (<2 years) conversion of TST from negative to positive Diabetes (controlled or uncontrolled) Malnutrition (<90% of ideal body weight) Current tobacco smoker (any amount) Daily consumption of >3 alcoholic beverages Silicosis Hematologic malignancies and certain carcinomas (head, neck, lung, and/or GI tract) Any population considered at low risk of disease

TST – False negatives

- **Active TB**
- **Immune suppression**
- Error in administration or reading (e.g. given too deep, >72H)
- Age < 6 months or advanced age
- Receipt of live vaccine (esp. MMR/MMR-V) in past 4 weeks
- Major viral illness in past 4 weeks
- Severe malnutrition, chronic renal failure, severe physiologic stress (surgery, burns, severe illness)

TST – False positives

- Incorrect reading (e.g. erythema rather than induration)
- Infection with **non-tuberculous mycobacteria** (e.g. MAC)
- **Prior BCG vaccination**: *real but often inappropriately blamed*
  - Given in infancy → unlikely to cause TST ≥ 10 mm in those ≥ 10 y
  - Given aged 1-5 y → 10-15% will have positive TST up to 25 years later
  - Given aged 6+ y → 40% chance of persistent positive TST later in life

Treat a positive TST as real even when history of BCG vaccination, if any of following are true:

- Close contacts of an active case
- Population with high risk of developing infection
- Immigrants from countries with a high burden of TB
- Persons from Aboriginal communities with high rates of TB
- BCG vaccination in infancy & person is now $\geq$ 10 years of age
- Immunocompromised, including HIV and renal failure
- Diabetes
- Chest x-ray consistent with old healed inactive TB

Essentially, if you have a high pre-test probability of LTBI

IGRA/QuantiFERON-TB Gold

- Measures cell-mediated immune response to MTB
- $90 out-of-pocket cost to patient in Ontario
- Blood test, can be done via LifeLabs or Dynacare
- Not affected by BCG vaccination
- False positives: certain NTM infections (but <<<TST)
- False negatives: immunocompromising conditions, active TB
- Again, can’t differentiate LTBI from active TB
- **Consider in those with positive TST and history of BCG vaccination, especially if multiple doses or last >1 year of age**

Positive screen for LTBI – what now?

- **MUST rule out active TB before offering treatment for LTBI**
- Everyone needs: a) **thorough history & physical**, and b) **chest x-ray** (PA/Lat)
- If resp symptoms or abnormal CXR: collect sputum AFB cultures x3 (at least 1 hour apart)
- Other imaging/cultures as directed by symptoms and exam
- Remember may have NO respiratory or constitutional symptoms
- Often only symptom is chronic cough (> 2 weeks)
- Remember can have normal CXR esp. in immunocompromised

Positive screen for LTBI – what now?

- **Discuss risks/benefits** of treatment with patient – TST/IGRA interpreter helpful for framing risk of treatment vs. reactivation
- Decide if **referral** to Infectious Diseases appropriate
- Review **medications** – any significant drug-drug interactions?
- Review **comorbidities** – is patient at incr. risk of hepatotoxicity?
- Get **baseline bloodwork** – generally, CBC, Cr, ALT, T bili
  - In kids without liver disease, can skip baseline liver enzymes
- **Screen for HIV** in those with risk factors

LTBI treatment – first line

4R: **daily rifampin x4 months**

dose 10 mg/kg, up to max. 600 mg

SE: rash, drug interactions

3HP: **weekly rifapentine and isoniazid x3 months**

isoniazid 15 mg/kg, up to max. 900 mg

rifapentine by weight bracket, ≥ 50 kg is 900 mg

SE: flu-like reactions, drug interactions, hepatotoxicity

LTBI treatment – second line

9H **daily isoniazid x9 months**

5 mg/kg, up to max. 300 mg

NB: lower dose than used with 3HP regimen

SE: hepatotoxicity, peripheral neuropathy

LTBI treatment – alternate regimens

- 6H: isoniazid daily x6 months (inferior to 9 months regimen)
- 3HR: isoniazid and rifampin daily x3 months
- Isoniazid twice weekly x9 months (only with DOT)
- *1HP: rifapentine and isoniazid daily x1 month (currently not recommended in Canada, but being studied)*

Special populations

- Contacts of **drug-resistant TB**:
  - If mono-resistant to RIF: use INH x9 months (9H)
  - If mono-resistant to INH: use RIF x4 months (4R)
  - If multi-drug resistant: refer to ID
- **Older patients**:
  - 4R or 3HP preferred over 9H (hepatotoxicity risk from isoniazid increases with age)
- **Pregnancy**:
  - Generally, defer treatment of LTBI to post-partum period unless risk of reactivation is very high; if decide to treat, 4R preferred intra-partum

Special populations

- People living with **HIV**:
  - Refer to ID, complicated interactions between TB drugs and antiretrovirals
- **End-stage renal disease**:
  - No renal dose adjustment for isoniazid, rifampin, or rifapentine
  - More frequent monitoring recommended
- **Solid organ transplant**:
  - Good practice to treat before transplant, when possible
  - In post-transplant setting, 9H used due to ++ interactions with rifampin

LTBI treatment - cost

- All medication for the treatment of latent TB infection (and active TB) can be ordered at **no cost to patient** from MLHU
- If you send Rx to retail pharmacy → patient pays, $$$
- **TB Medication Prescription and Order Form** available from MLHU website
- Completed forms can be faxed to: 519-663-8241

Monitoring

- All regimens:
  - assess adherence/tolerance 1 month into course
- 4R/3HP:
  - CBC, ALT, total bilirubin at 1 month
  - No need to repeat again unless initial result abnormal, symptoms, or risk factors for hepatoxicity
- Other regimens:
  - Monthly ALT, total bilirubin (+CBC if on a rifamycin)

Pre-treatment patient counselling

- Latent TB is not contagious to others
- Side effects of medications
- Symptoms of hepatotoxicity
- Review with pharmacist before starting any new Rx/OTC meds
- Notify if symptoms of active TB at any point during LTBI Tx
- LTBI treatment reduces but does not eliminate risk of reactivation TB – If symptoms of active TB down the road, need assessment

Reporting to public health

- All cases of latent TB infection and/or active TB disease MUST be reported to the local public health unit
- Cases of suspected, but not yet confirmed active TB should also be reported
- Patient consent is not required per HPPA/PHIPA
- Positive TST/IGRA result can be faxed to: 519-663-8241

Summary – key points

- Treatment of LTBI reduces the risk of later reactivation to active TB
- Extremes of age, immunocompromised at greatest risk of progression to active TB
- Only screen if you plan to treat (or monitor for active TB)
- For most, one-step TST is adequate
- Remote BCG vaccination at <1 year of age does not explain reactive TST in those ≥ 10 years of age
- MUST rule out active TB before treating as latent TB
- First line regimens are either 4 months of daily rifampin (4R) or 3 months of weekly isoniazid plus rifapentine (3HP)
- If unsure about diagnosis or treatment → refer to ID

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Helpful Resources

- **Canadian TB Standards** (8th ed., 2022): https://www.tandfonline.com/toc/ucts20/6/sup1
- **TST/IGRA Interpreter**: www.tstin3d.com
- **Periskope Personalized TB Risk Predictor**: http://periskope.org/tb-risk-predictor/
- **BCG World Atlas**: www.bcgatlas.org
- **LTBI Quick Reference Guide** (4 pages, Toronto Public Health Unit): www.toronto.ca/wp-content/uploads/2017/10/8e93-tph-TB-LTBI-4pager-TPH-Guideline-2013.pdf
- **MLHU – TB Medication Prescription and Order Form**: https://www.healthunit.com/uploads/tb_medication_prescription_order_form_april_2019.docx
- **MLHU – Sputum collection instructions**: https://www.healthunit.com/uploads/mlhu-sputum-collection-fact-sheet.pdf
- **MLHU – TB for Healthcare Providers**: https://www.healthunit.com/tb-healthcare-providers

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Questions?

- Ask using chat function now, or after the webinar at: healthcareproviders@mlhu.on.ca
- For urgent matters please call the Health Unit's main line at **519-663-5317**
- For more information www.healthunit.com/healthcare-providers