

Latent Tuberculosis Infection (LTBI)

What You Need To Know

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Agenda

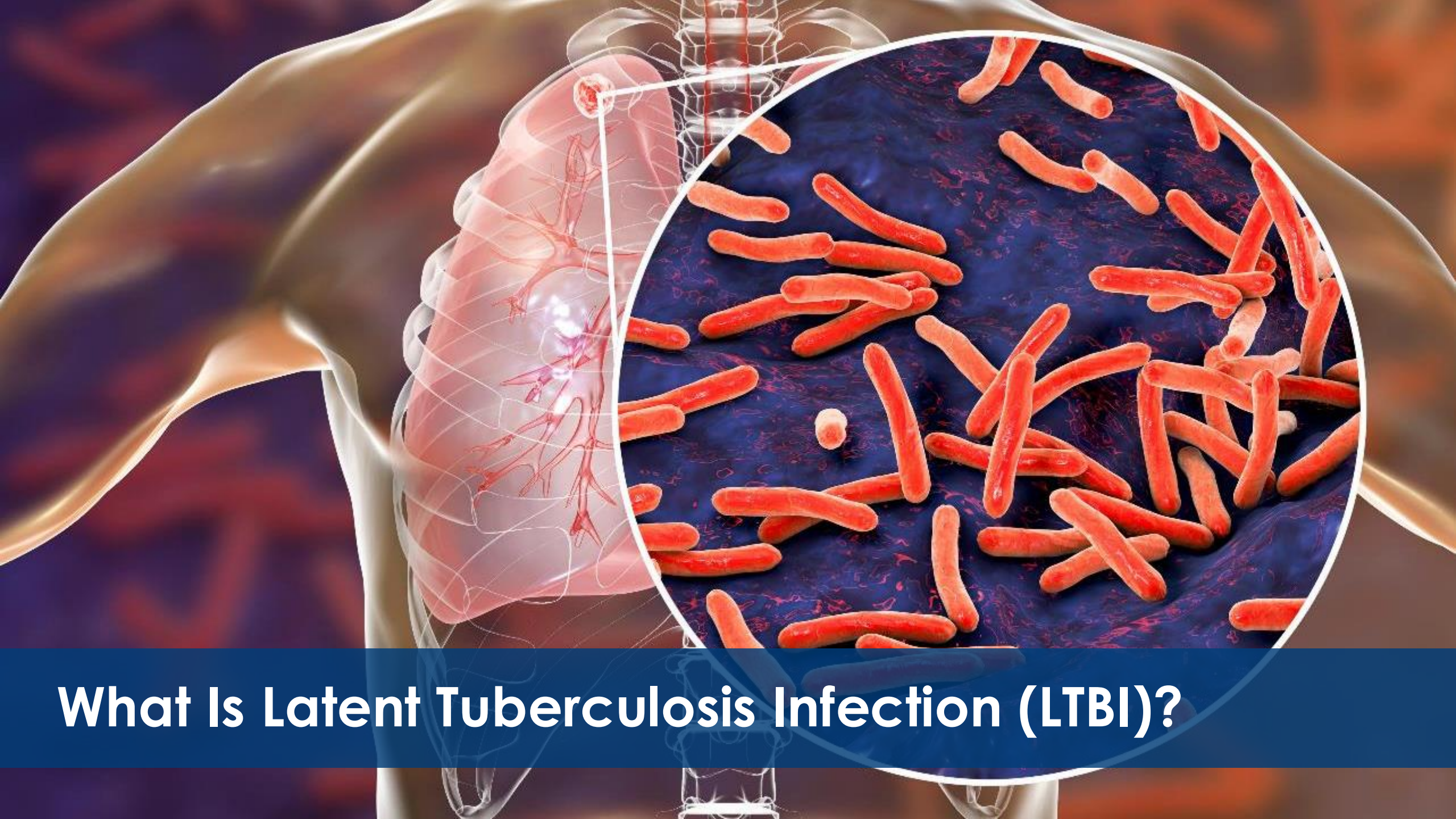
What Is Latent Tuberculosis Infection (LTBI)?

The Role of LTBI in Active Tuberculosis Disease

LTBI Epidemiology

Treatment Regimens

Wisconsin Surveillance Documentation (WEDSS)



What Is Latent Tuberculosis Infection (LTBI)?

LTBI Versus TB Disease

Person with LTBI (Infected)

Has a small amount of TB bacteria in the body that are alive, but inactive.

Cannot spread TB bacteria to others.

Does not feel sick, but may become sick if the bacteria become active in the body.

Person with TB Disease (Infectious)

Has a large amount of active TB bacteria in the body.

May spread TB bacteria to others.

May feel sick and may have symptoms such as a cough, fever, weight loss.

LTBI Versus TB Disease

Person with LTBI (Infected)

Usually has a TB skin test or TB blood test reaction indicating TB infection.

Radiograph is typically normal.

Sputum smears and cultures are negative.

Person with TB Disease (Infectious)

Usually has a TB skin test or TB blood test reaction indicating TB infection.

Radiograph may be abnormal.

Sputum smears and cultures may be positive.

LTBI Versus TB Disease

Person with LTBI (Infected)

Encourage treatment for LTBI to prevent TB disease.

Does not require respiratory isolation.

Person with TB Disease (Infectious)

Needs treatment for TB disease.

May require respiratory isolation.

LTBI Versus TB Disease

Person with LTBI (Infected)

Category II communicable disease.

Report within 72 hours to patient's local health department.

Person with TB Disease (Infectious)

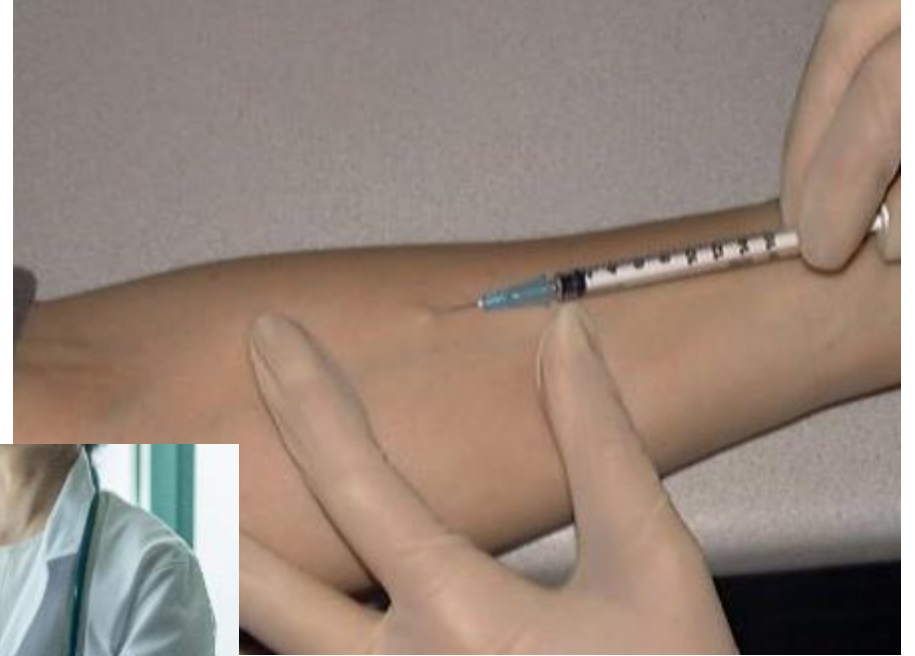
Category I communicable disease.

Report within 24 hours to patient's local health department.

How Do People Get Latent TB Infection?



How is Latent TB Infection Detected?



Case Definition for LTBI: Laboratory Criteria

Immunologic:

- Positive interferon gamma release assay (IGRA) blood test or
- Positive tuberculin skin test (TST)

Microbiologic:

- Culture negative for *M. tuberculosis* complex (if specimen collected)

Case Definition for LTBI: Clinical Criteria

No signs or symptoms consistent with TB disease **and**

Chest imaging without abnormalities consistent with TB disease.

If chest imaging is abnormal and could be consistent with TB disease, then TB disease must be clinically ruled out.

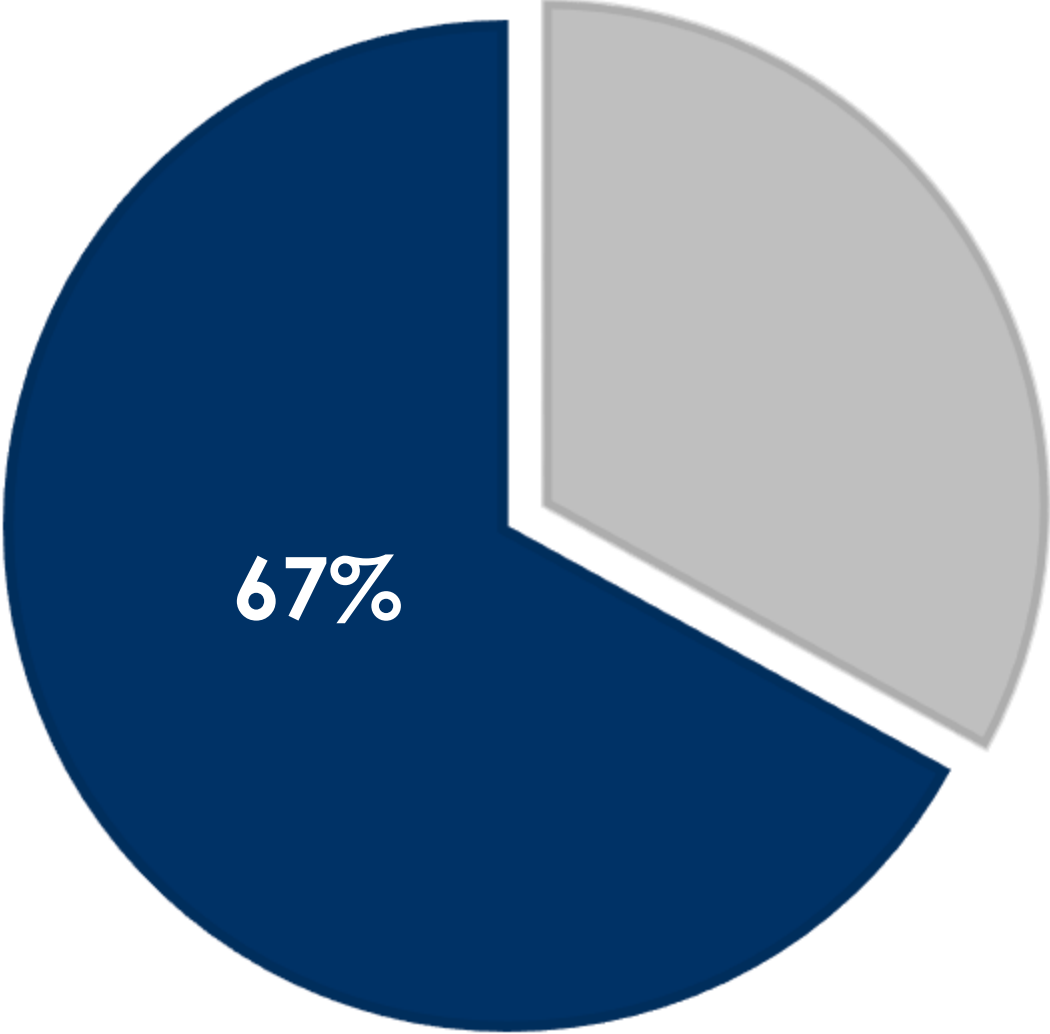
New LTBI Client: Now What?

Ask about risk:

- Were they **exposed** to someone with known infectious TB and/or part of an ongoing contact investigation?
- Are they an immigrant or refugee from a **TB endemic country**?
- Are they part of a **locally identified high-risk group**? (for example: African Americans from Milwaukee-Chicago corridor?)

Non-U.S. Born People with TB, 2009-2023

Non-U.S. born rate*
13.1



*Rates per 100,000 population calculated using U.S. Census Bureau American Community Survey population estimates

Why Risk Matters: Test Interpretation



TB antigen values between **0.36 and 1.11 IU/mL** were found to represent a “borderline” range.

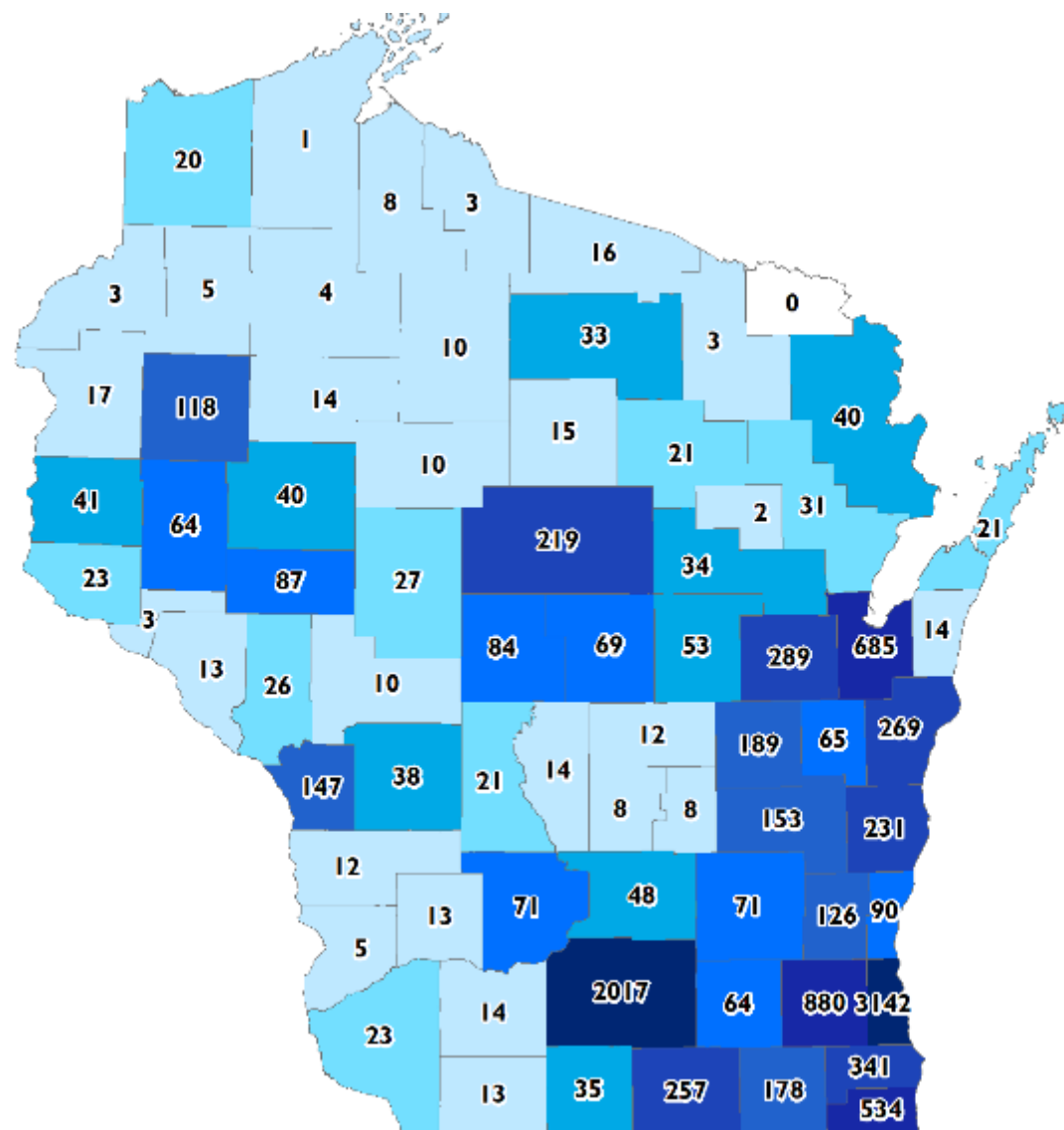
Results in this range may be considered a transient positive result with **a high likelihood of reversion** to negative upon retesting.

Dorman et al, 2013.

WHY
SHOULD
I CARE?



All But One Wisconsin County Has Had an LTBI Report (2018–2023)



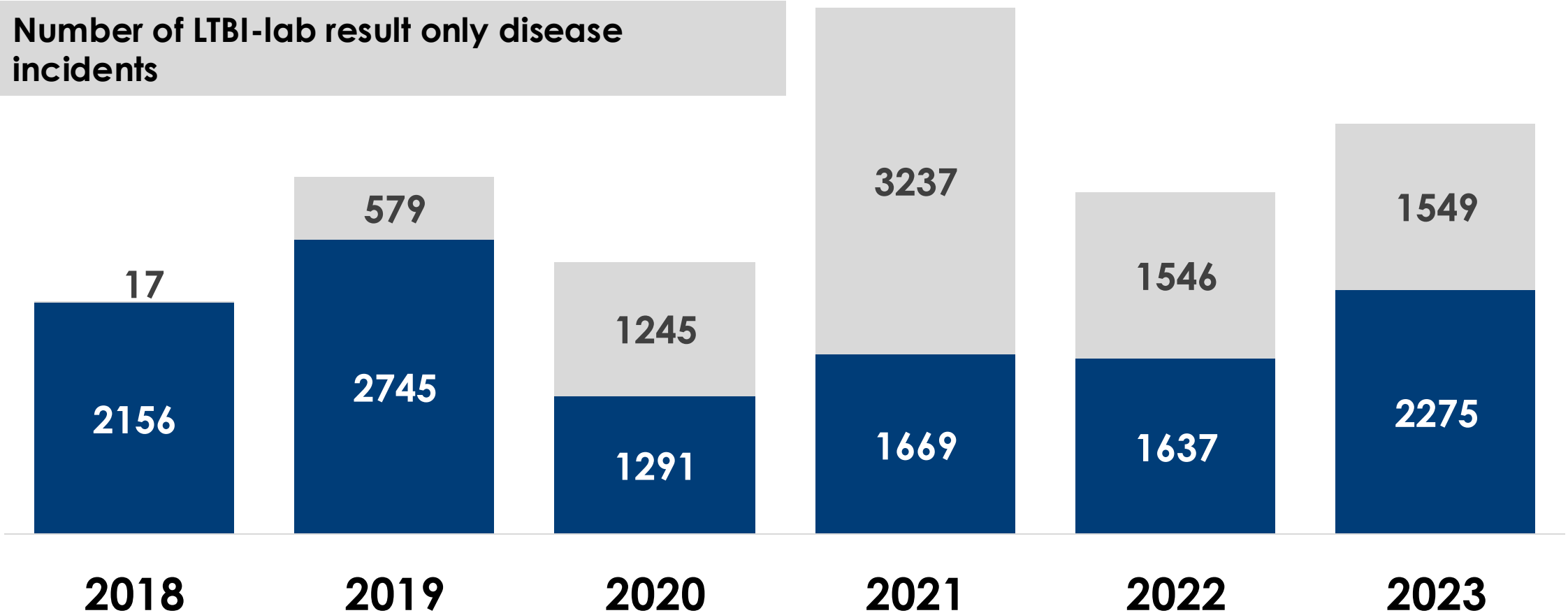
Latent TB Infection Epidemiology

- Reportable in Wisconsin since 2018.
- Two types of LTBI records used for statewide surveillance:
 - LTBI disease incidents.
 - LTBI-Lab only disease incidents.
- CDC is encouraging states to prepare to report LTBI in efforts to inform national prevention strategies.

Latent TB Infection Epidemiology

Number of LTBI disease incidents

Number of LTBI-lab result only disease incidents

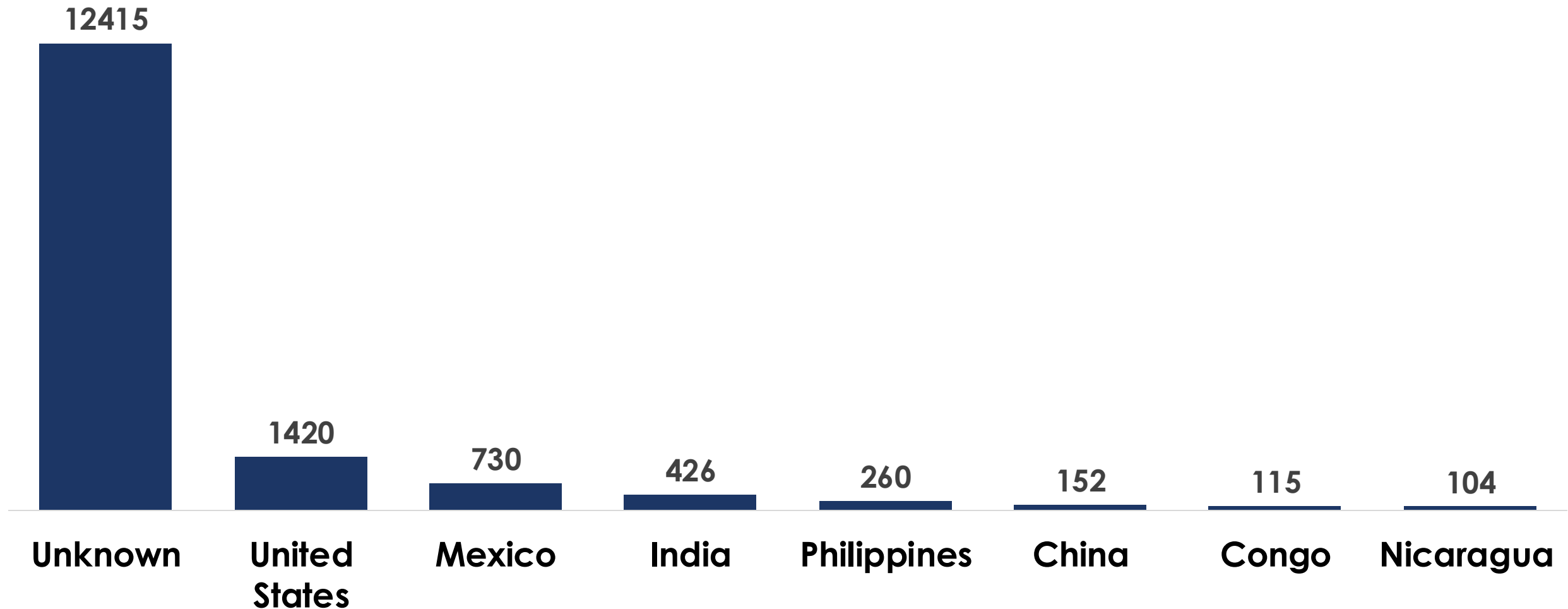


Latent TB Infection Epidemiology, 2018-2023

- Average total number of confirmed or suspect LTBI and LTBI-only reports: **3,324 records** (range 2173, 4906)
- LTBI-Lab only makes up **over 40%** of those records
- Of LTBI records:
 - 54% were female
 - 17% were Hispanic/Latino
 - 14% were aged 65-100
 - <1% were five or younger

Latent TB Infection Epidemiology

Number of LTBI records by Country of Birth (2018-2023)



Treatment for LTBI is Highly Encouraged because it:

- Reduces the risk of developing TB disease by 90%.



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- Is better tolerated than treatment for active TB.



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- Protects against transmission.







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- Reduces the risk of developing TB disease by 90%.
- Is better tolerated than treatment for active TB.
- Protects against transmission.
- Helps make TB elimination possible.



Treatment Regimens

	DRUG	DURATION	FREQUENCY	TOTAL DOSES	DOSE AND AGE GROUP
Preferred	ISONIAZID [†] AND RIFAPENTINE ^{††} (3HP) 	3 months	Once weekly	12	Adults and children aged ≥12 yrs INH: 15 mg/kg rounded up to the nearest 50 or 100 mg; 900 mg maximum RPT: 10–14.0 kg; 300 mg 14.1–25.0 kg; 450 mg 25.1–32.0 kg; 600 mg 32.1–49.9 kg; 750 mg ≥50.0 kg; 900 mg maximum Children aged 2–11 yrs INH [†] : 25 mg/kg; 900 mg maximum RPT ^{††} : See above
	RIFAMPIN [§] (4R) 	4 months	Daily	120	Adults: 10 mg/kg; 600 mg maximum Children: 15–20 mg/kg [§] ; 600 mg maximum
	ISONIAZID [†] AND RIFAMPIN [§] (3HR) 	3 months	Daily	90	Adults INH [†] : 5 mg/kg; 300 mg maximum RIF [§] : 10 mg/kg; 600 mg maximum Children INH [†] : 10–20 mg/kg [§] ; 300 mg maximum RIF [§] : 15–20 mg/kg; 600 mg maximum
Alternative	ISONIAZID [†] (6H/9H) 	6 months	Daily	180	Adults Daily: 5 mg/kg; 300 mg maximum Twice weekly: 15 mg/kg; 900 mg maximum
			Twice weekly [¶]	52	
		9 months	Daily	270	Children Daily: 10–20 mg/kg [§] ; 300 mg maximum Twice weekly: 20–40 mg/kg [§] ; 900 mg maximum
			Twice weekly [¶]	76	

Barriers to Treatment for LTBI



**Clinic-
Related
Barriers**

**Patient-
Related
Barriers**

**Treatment
Barriers**

Tools to Address Barriers and Improve Adherence to Treatment



- Use motivational interviewing.
- Leverage the client's reasons for wanting treatment.
- Educate client about the benefits of treating LTBI.
- Provide DOT .
- Case management.
- Use dispensary.
- Incentives and enablers.

Documenting in WEDSS



Patient: Test, Test Patient ID: 40446895 Incident ID:
DOB: 01/01/1988 Disease: TUBERCULOSIS, LATENT INFECTION (LTBI) Pro/Res Status: /

Patient **LTBI - LabClinical** LTBI - Treatment LTBI - Case Mgnt Investigation

+ -

- + LTBI Case Definition
- + Tuberculin Skin Testing (TST)
- + TB Blood Test
- + Microbiologic Monitoring
- + HIV Test
- + Radiologic Monitoring
- + Adverse Reaction Monitoring
- + Tuberculosis Symptoms
- + Routine Labs

Sections in **RED** should be addressed to meet surveillance definition.

Patient: Test, Test Patient ID: 40446895 Incident ID:
 DOB: 01/01/1988 Disease: TUBERCULOSIS, LATENT INFECTION (LTBI) Pro/Res Status: /

Patient LTBI - LabClinical LTBI - Treatment LTBI - Case Mgmt Investigation

+ -

+ LTBI Medication Request

+ LTBI Medication Refill

+ LTBI Medication

+ Other Medications

- LTBI Medication Outcome

Treatment orders received
 Yes No Unknown

Treatment orders received date

Treatment Started
 Yes No Unknown

TB Treatment Regimen

Date Medication Started

Date Medication Stopped

Length of treatment

If other, specify length of treatment

Reason therapy extended >12 months

If other reason, specify

Directly observed therapy

Number of weeks of DOT

TB treatment regimen completed
 Yes No Unknown

Reason patient did NOT complete TB treatment regimen

Reason patient decided to stop medication

Reason provider decided to stop medication

If patient died, indicate cause of death

+ Medication Administration and DOT

LTBI treatment **regimen** and **start and stop dates** should also be documented.

Patient: Test, Test Patient ID: 40446895 Incident ID:
 DOB: 01/01/1988 Disease: TUBERCULOSIS, LATENT INFECTION (LTBI) Pro/Res Status: /

+ -

+ Language Proficiency

+ TB Risk Assessment - Reason For Testing

+ CURRENT OCCUPATION AND INDUSTRY

+ Standardize Occupation and Industry (O/I)

+ Attempts to Contact

+ Disability Information

+ Providers

+ Case Notes

- TB Program Guidance/Recommendations Disclaimer

Per Wisconsin State Statute 250.04(6) the Wisconsin Department of Health Services' Tuberculosis program provides "consultation, technical assistance and training regarding public health to local health departments, community organizations, and others."

All guidance and recommendations issued by the State of Wisconsin Tuberculosis program are intended to support best practices and decision-making at the local jurisdictional level with respect to the control of Tuberculosis and Latent Tuberculosis Infection in Wisconsin.

+ TB Program Guidance/Recommendations

- Filing Cabinet Case Report Buttons

Sections in **RED** should be addressed to meet surveillance definition.

Disease Incident



Patient: Test, Test
DOB: 01/01/1988

Patient ID: 40446895
Disease: TUBERCULOSIS, LATENT INFECTION (LTBI)

Incident ID:
Pro/Res Status: New/Suspect

- Patient
- LTBI - LabClinical
- LTBI - Treatment
- LTBI - Case Mgnt
- Investigation

Case Information

* Jurisdiction

Unknown

Secondary Jurisdiction

Investigator

Reporting Source

* Provider

Provider Name

Submitter Name Raschka, Mary

Lab

Additional Provider

Additional Lab

Link to Animal Report

Dates

Date of Onset

Asymptomatic

(Lab Specimen)
Collection Date

Date of Diagnosis

Date of Death

* Date Received

* Date Created

12/20/2024

Episode Date

Date Closed

Date Admitted

Statuses

* Process Status

New

- New
- Received by LTHD
- Open Local Investigation
- New LTBI medication order
- Medication order processed
- Updated
- LTBI Medication refill order
- Refill order processed
- New CDC EDN Documents
- Completed Local Investigation
- Returned to LTHD
- Closed by LTHD
- Final

Final Disposition

Transmission Status

Date Sent



Choose the appropriate **process status**.

Patient | LTBI - LabClinical | LTBI - Treatment | LTBI - Case Mgmt | Investigation

Case Information

* Jurisdiction
Unknown

Secondary Jurisdiction

Investigator

Reporting Source

* Provider

Provider Name

Submitter Name: Raschka, Mary

Lab

Additional Provider

Additional Lab

Dates

Date of Onset

Asymptomatic

(Lab Specimen) Collection Date

Date of Diagnosis

Date of Death

* Date Received

* Date Created: 12/20/2024

Episode Date

Date Closed

Date Admitted

Statuses

* Process Status
New

Set to the Next Status

Set to: Not a Case

Confirmed

Non-resident, Confirmed

Non-resident, Probable

Non-resident, Suspect

Not A Case

Probable

PVD+ Not A Case

Suspect

Unknown

Suspect

Final Disposition

Transmission Status

Date Sent

Choose the appropriate **Resolution Status**, based on EpiNet LTBI surveillance definition.



Patient: Test, Test Patient ID: 40446895 Incident ID:
DOB: 01/01/1988 Disease: TUBERCULOSIS, LATENT INFECTION (LTBI) Pro/Res Status: New/Suspect

Patient LTBI - LabClinical LTBI - Treatment LTBI - Case Mgmt Investigator

Case Information

* Jurisdiction
Unknown

Secondary Jurisdiction

Investigator

Reporting Source

* Provider

Provider Name

Submitter Name Raschka, Mary

Lab

Additional Provider

Additional Lab

Link to Animal Report

View

Index Case Cluster ID

Dates

Date of Onset

Asymptomatic

(Lab Specimen) Collection Date

Date of Diagnosis

Date of Death

* Date Received

* Date Created

12/20/2024

Episode Date

Date Closed

Date Admitted

Date Discharged

Administrative Closure

- Administrative Closure
- Administratively Closed
- Batch Close
- Closed as suspect
- Closed, resolved
- Closed, unresolved
- Closure Criteria Met
- Completed, resolved
- Completed, unresolved
- CS Scenario 1
- CS Scenario 2
- CS Scenario 3
- CS Scenario 4
- Domestic violence risk
- False Positive
- Follow-up Complete
- Follow-up Completed by PCP
- Forwarded out of state
- Infected, brought to treatment

Transmission Status

Date Sent

Last CDC Update

Choose the **Final Disposition** field, using "Infected, brought to treatment" if treated for LTBI.



DON'T FORGET LTBI LAB-RESULTS ONLY RECORDS!

Patient: Test, Test Patient ID: 4044895 Incident ID:
DOB: 01/01/1988 Disease: TUBERCULOSIS, LTBI - LABORATORY RESULTS ONLY Pro/Res Status: New/Suspect

Patient LTBI-Lab Only Investigation

* Disease Being Reported TUBERCULOSIS, LTBI - LABORATORY RESULTS ONLY

Name
^ Last Name ^ First Name Middle Name Name Suffix
Test Test

Future Client No. * DOB (MM/DD/YYYY) Age Months Days
01/01/1988 36

Address Number & Street
UNKNOWN

City State Zip
STEVENS POINT WI 54481

Census Tract County of Residence Country of Residence
N/A PRICE, WI

Country of Birth Date of Arrival (MM/DD/YYYY)

Home Telephone Cellular Phone / Pager Work/School Telephone

E-mail Address Other Electronic Contact Information

Work/School Location Work/School Contact

* Gender Pregnant? Estimated Delivery Date
Male Yes No Unknown

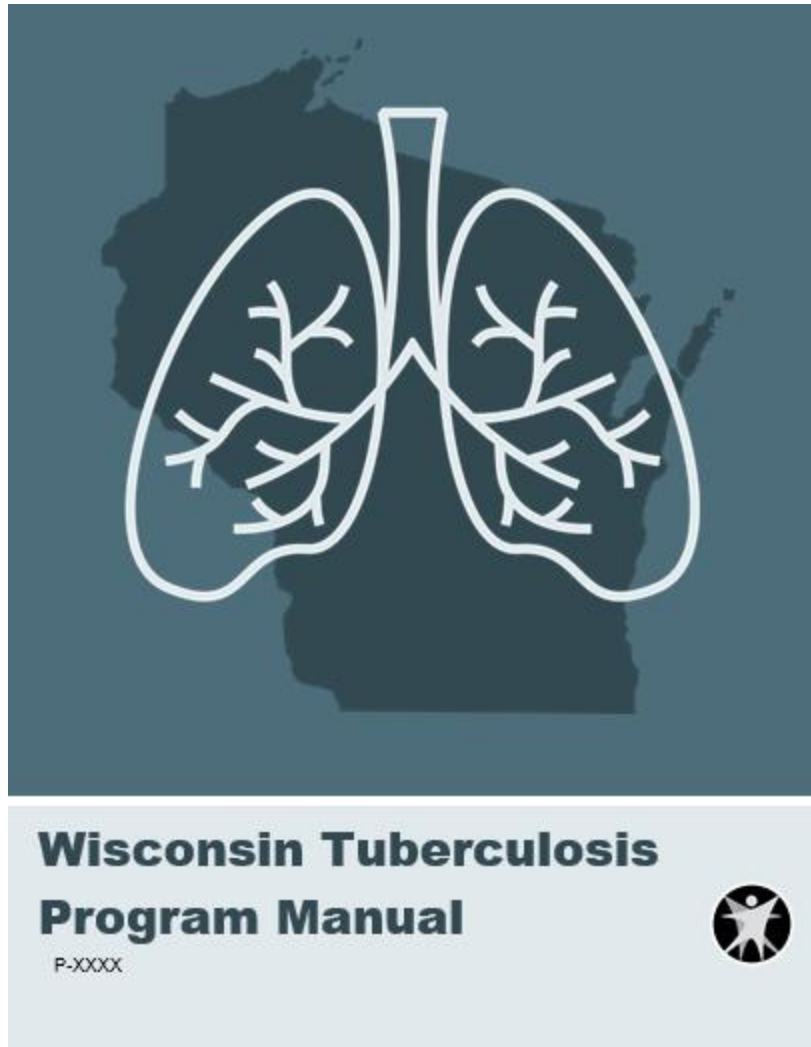
Marital Status Medical Record Number Patient's Parent/Guardian Name
View...

Occupation Setting Describe/Specify

Primary Language
Ethnicity Unknown
Race
 American Indian or Alaska Native
 Asian
 Black or African American
 Native Hawaiian or Other Pacific Islander
 Other
 Unknown
Specify
 White
Reported Race
Unknown

DHS encourages follow up for all LTBI reports.

We Have a Manual!



Guidance for handling Latent Tuberculosis Infection cases is included in our **NEW Wisconsin Tuberculosis Program Manual!**

- Chapter 7- Diagnosis of Latent Tuberculosis Infection
- Chapter 8- Treatment of Latent Tuberculosis Infection

Wisconsin TB and Refugee Health Program at DHS:



Claire
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Pat
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Raschka



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Kersten



Madison
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Dr. E. Ann
Misch



TB Program Contact Information

Please, call or email us with questions!



Main TB Phone Line: 608-261-6319



Fax: 608-266-0049



TB Program Email:

DHSWITBProgram@dhs.wisconsin.gov



Website:

www.dhs.wisconsin.gov/tb/index.htm



Questions?

Thank you!





Let's Practice!

Louise works as a CNA and was given a QuantiFERON test prior to employment. The qualitative result is positive, and the TB1-Nil result is 0.70. TB2-NIL result is 0.34. Both controls (Mitogen and NIL) are within normal limits. She does not have symptoms or risk factors.

What is the correct action in this scenario?

- A. Refer Louise for chest imaging.**
- B. Offer Louise treatment for LTBI.**
- C. Retest Louise in 3–6 months.**
- D. Collect 3 sputum specimens.**

Miguel has recently come to the United States from Mexico. He received a TST as part of his immigration exam, which was read at 12mm and reported as positive. He does not have any symptoms.

What is the correct action in this scenario?

- A. Offer Miguel LTBI treatment.**
- B. Collect sputum.**
- C. Tell Miguel to follow up with his doctor.**
- D. Refer Miguel for chest imaging.**

You refer Miguel for a chest x-ray, which is normal. What is the correct action at this point?

- A. Offer LTBI treatment to Miguel.**
- B. Do nothing.**
- C. Collect sputum.**
- D. Tell Miguel he is ok and doesn't need to do anything further.**

Gail went on an African safari for her honeymoon earlier this year and has not been feeling well recently. Her doctor orders a QuantiFERON test, which is positive with a TB1-Nil value of 1.24 and a TB2-NIL value of 1.56. Both controls (Mitogen and NIL) are within normal limits. She then receives a chest x-ray which shows some patchy consolidation.

What is the correct action in this scenario?

- A. Offer Gail LTBI treatment.**
- B. Collect sputum specimens.**
- C. Convert the record to a TB disease incident and contact Gail to arrange for directly observed therapy for her TB.**
- D. Do nothing.**

An LTBI Lab-Results only record is found during your jurisdiction review. What should you do?

What is the correct action for an LTBI Lab-Results Only record in WEDSS?

- A. Convert the record to a disease incident.**
- B. Ignore it.**
- C. Contact the client to determine why they were test and if they have risk factors.**
- D. Call the WI TB Program and let them handle it.**

TB Program Contact Information

Please, call or email us with questions!



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Fax: 608-266-0049



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DHSWITBProgram@dhs.wisconsin.gov



Website:

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