TB Nurse Network Meeting

Wednesday, January 17, 2018
10:00-11:30 AM ET
Conference call in number: 1-888-557-8511
Access Code: 254-487-3 #

Please Remember to Mute Your Phones
Do Not Put Us on Hold

Enter your name and facility into the chat box for attendance
Announcements

• Next meeting Wednesday, April 18th, 2018
  ▪ Topic: TBD. Suggestions? Contact mcguirkh@michigan.gov

• LHD billing for TB services
  ▪ How do you bill for TB services?
  ▪ Survey coming soon
Michigan Learning Opportunities

TB Contact Investigation Trainings
- Skills 3-day course
  - Late summer, July? Lansing?
  - 18-24 attendees
  - Must be LHD or TB clinic employee
  - First spots: someone who has never taken the course, new to TB (within 5 years), or works in a high TB-burden county
  - Interested? Email mcguirkh@Michigan.gov

- Introduction to TB Contact Investigations Online Webinar (about 1.5 hours)
  - Open to anyone interested, more information soon
Michigan Learning Opportunities

• **2018 World TB Day Conference**
  ▪ Monday, March 26th 2018
  ▪ Okemos Conference Center
  ▪ Nominations for TB survivors, call Helen 517-284-4957
  ▪ Panel on legal role of public health in TB control ➔ send us your questions!

• **Sunstrum Seminar**
  ▪ Three-Year-Old Girl with a Positive IGRA
  ▪ Friday 1/19/18; 8:15 – 9:30 AM
  ▪ Wayne County TB Clinic, 2001 S. Merriman Rd, Suite 300, Westland, MI 48186
  ▪ In-person or online (same dial and website info as today for webinar)
CDC COEs

CDC TB Centers of Excellence for Training, Education, and Medical Consultation (COEs) — formerly RTMCCs

Rutgers Global TB Institute

No upcoming trainings/recently archived webinars at this time

| Region 1, Curry International TB Center |
| Region 2, Heartland National TB Center |
| Region 3, Global TB Institute |
| Region 4, Southeastern National TB Center |

*COE Location
New Resources

TB Nurse Case Studies Training Tool

A Clinician’s Guide to the TB Laboratory
http://www.heartlandntbc.org/assets/products/clinicians_lab_guide.pdf
TB in the News

• **Fast, Cheap Testing for Tuberculosis? Soon It May Be Possible** – Jan 1, 2018
  - LAM is a sugar component of the cell wall shed by *Mycobacterium tuberculosis*. Can be found in the urine of those with active pulmonary TB disease.
  - 101 HIV-negative Peruvian patients, 48 culture confirmed active pulmonary TB
  - LAM was elevated in patients with a higher mycobacterial burden, higher proportion of weight loss, or cough
  - 8/9 patients who were smear-negative and culture-positive for TB testing positive for LAM

• **Improved Diagnostics Fail to Halt the Rise of Tuberculosis** – *Nature magazine 11/17/17, republished in Scientific American*
  - Short editorial on high hopes of GeneXpert, and countries with a “weak health system” are not seeing the returns they had hoped for
  - “The tale is a familiar one in global health care: a solution that seems extraordinarily promising in the lab or clinical trials falters when deployed in the struggling health-care systems of developing and middle-income countries.”
TB in the News

• **How TB Shaped Victorian Fashion** – *Smithsonian Magazine*
  
  • 1780-1850: thinness and pale skin were attractive attributes for women
  
  • Mid-1850’s: “Consumptive chic”; corsets showed off narrow waists. Middle and upper-class women used makeup to lighten their skin, redden their lips and color their cheeks.
  
  • Second half of 19th century: Robert Koch and germ theory; public health began targeting factors to prevent the spread of TB. No more:
    
    • Long, trailing skits (swept up germs from the streets)
    
    • Corsets – exacerbates TB by limiting the movement of lungs and circulation of blood. “Health Corsets” were introduced
    
    • Men’s extravagant beards

“The Trailing Skirt: Death Loves a Shining Mark,” *Puck*, August 8, 1900
Interesting Publications

Vitamin C potentiates the killing of *Mycobacterium tuberculosis* by the first-line tuberculosis drugs isoniazid and rifampicin in mice – American Society for Microbiology, Jan 3, 2018

- High concentrations of vitamin C sterilize cultures of drug susceptible and drug resistant Mtb.
- Combination of vitamin C and isoniazid and rifampicin reduced bacterial burden in the lungs of Mtb infected mice faster than isoniazid and rifampicin alone.
- Suggest the addition of vitamin to first-line TB drugs could shorten TB treatment in humans.

Reprograming Innate Immune Cells to Fight TB – Cell, 1/11/18

- Focusing on macrophages – innate response, which Mtb immediately disarms
- Showed when BCG is administered to mice in a way that enables access to bone marrow, it can reprogram stem cells (generate all immune cells).
Interesting Publications

Tuberculosis State Is Associated with Expression of Toll-Like Receptor 2 in Sputum Macrophages – American Society for Microbiology, 10/12/17

- Mtb parasitizes the host macrophage
- Looked at macrophages with “Toll-like Receptor 2” from sputum in three different groups of people:
  1. Infection-free
  2. LTBI
  3. Active pulmonary TB disease
- If we could distinguish LTBI from active TB, high-risk individuals could be targeted for treatment before disease begins manifestation.
Interesting Publications

2016

- Puerto Rico Department of Health (PRDH) were not available to administer daily DOT and the facility did not have the personnel needed to provide daily patient transport to the PRDH clinic.

- Standard “live” vDOT protocol was attempted, but not sustainable due to unpredictable cell phone and internet connectivity.

- Asynchronous vDOT protocol in Spanish was developed.

- Commute would have taken 1.5 hours per day, DOT for each of the 17 people would have required an additional 1.5 hours per day of observation.

- Use of asynchronous VDOT saved PRDH approximately 240 hours in DOT-related activities, equivalent to 25% of the workload for a full-time epidemiology technician/case manager over 6 months of treatment.

- CDC has developed an eDOT toolkit (https://www.cdc.gov/tb/publications/guidestoolkits/tbedottoolkit.htm) to facilitate adoption of these practices.
<table>
<thead>
<tr>
<th>Disease Type</th>
<th>% Compliance*</th>
<th>Avg # doses taken</th>
<th>Avg # doses scheduled</th>
</tr>
</thead>
</table>
| TB Disease (11)  
6 months rifampin, isoniazid, pyrazinamide | 92 | 128† | 144 |
| LTBI (6)  
4 months Rifampin | 87 | 96§ | 110 |

* percentage of recommended doses taken  
† CDC recommends completion of 130-dose treatment during a 5 day/week regimen for active TB disease and compliance is **recommended to be at least 80%**. Doses taken were counted only during weeks in which ≥4 doses occurred (80% compliance).  
§ CDC recommends completion of 120-dose Rifampin treatment during a 7 day/week regimen. Duration of treatment was extended from 16 to 22 weeks to accommodate 5 day/week dosing and achieve 80% compliance.

[https://www.cdc.gov/tb/publications/ltbi/treatment.htm#treatmentRegimens](https://www.cdc.gov/tb/publications/ltbi/treatment.htm#treatmentRegimens)
A Guide to Interpretation of PCR Results from the State Lab

Jolene Vanneste
Senior Microbiologist
Mycobacteriology Unit
Michigan Department of Health and Human Services

Prevent Disease – Promote Wellness – Improve Quality of Life
Objective:

Understanding the 3 different types of PCR reports:

1. From clinical specimens processed at MDHHS
2. From clinical specimens processed by facilities other than MDHHS
3. From cultures positive for acid-fast bacilli
Quick Algorithm for Clinical Specimens

Specimen decontaminated → Slide Prepared → PCR Performed on New Slide Positive Patients Specimens → Report Generated

Prevent Disease – Promote Wellness – Improve Quality of Life
POSSIBLE SLIDE RESULTS:

Acid Fast Bacilli – Not Found
Auramine-O negative
Auramine-O positive?, ZN negative

Acid Fast Bacilli – Few Found
Auramine-O positive, ZN positive <10 AFB seen

Acid Fast Bacilli – Found
Auramine-O positive, ZN positive >10 AFB seen
**POSSIBLE RESULTS:**

M. tuberculosis complex DNA – DETECTED / Not Detected

M. avium complex DNA – DETECTED / Not Detected

-NAA testing was developed and its performance characteristics determined by the Michigan Department of Health and Human Services. It has not been cleared or approved by the U.S. Food and Drug Administration (FDA). The FDA has determined that such clearance or approval is not necessary if performance characteristics are verified at the testing laboratory.

-All NAAT results should be confirmed by culture. A negative result does not rule out the possibility of isolating M. tuberculosis complex and/or M. avium complex from this specimen.

-MYCOBACTERIUM CULTURE IN PROGRESS
POSSIBLE RESULTS:

M. tuberculosis complex DNA – DETECTED / Not Detected
M. avium complex DNA – DETECTED / Not Detected

-NAA testing was developed and its performance characteristics determined by the Michigan Department of Health and Human Services. It has not been cleared or approved by the U.S. Food and Drug Administration (FDA). The FDA has determined that such clearance or approval is not necessary if performance characteristics are verified at the testing laboratory.

-All NAAT results should be confirmed by culture. A negative result does not rule out the possibility of isolating M. tuberculosis complex and/or M. avium complex from this specimen.

-SPECIMEN RECEIVED AS PROCESSED SEDIMENT

-SLIDE AND CULTURE EXAMINATION NOT PERFORMED
Identification Techniques:

- MALDI-TOF: performed on growth from solid media or a subculture of original broth culture
- AccuProbe: performed on broth or solid media cultures
- PCR: performed on broth cultures for patients with NO history of Mycobacterium sp. or NTM history greater than 1 year ago
- HPLC – No longer available at MDHHS...

The AF Lab will perform whichever test is appropriate to get the quickest result out.
Prevent Disease – Promote Wellness – Improve Quality of Life

Quick Algorithm for Culture Identification

Patient with Mycobacterial history

Subculture - Incubate

24-48 hr TAT

PCR to rule in/out MTBC with NEW positive patients

Broth Culture

24-48 hr TAT

MALDI-TOF

24-48 hr TAT

Report Generated

Solid Medium Culture

Report Generated
Broth cultures positive at facilities other than MDHHS

Date Collected: 12/04/2017
Time Collected: 11:10
Date Received: 12/05/2017
Specimen Type: SPUTUM

Acid-Fast Bacilli Cultural Isolate

AFB Identification
PRELIMINARY REAL TIME PCR REPORT - M. tuberculosis complex DNA - NOT DETECTED

PRELIMINARY REAL TIME PCR REPORT - M. avium complex DNA - DETECTED

This test was developed and its performance characteristics determined by the Michigan Department of Health and Human Services. It has not been cleared or approved by the U.S. Food and Drug Administration (FDA). The FDA has determined that such clearance or approval is not necessary if performance characteristics are verified at the testing laboratory. ADDITIONAL REPORT WILL FOLLOW

Broth cultures positive at MDHHS

Date Collected: 11/30/2017
Time Collected: 07:27
Date Received: 11/30/2017
Specimen Type: SPUTUM

Acid-Fast Bacilli Clinical Specimen

AFB Slide
Acid Fast Bacilli - Not Found

AFB Isolation
Acid Fast Bacilli Found - Identification to Follow
THIS RESULT IS A NEW POSITIVE RESULT

AFB Identification
PRELIMINARY REAL TIME PCR REPORT - M. tuberculosis complex DNA - Not Detected
PRELIMINARY REAL TIME PCR REPORT - M. avium complex DNA - Not Detected

This test was developed and its performance characteristics determined by the Michigan Department of Health and Human Services. It has not been cleared or approved by the U.S. Food and Drug Administration (FDA). The FDA has determined that such clearance or approval is not necessary if performance characteristics are verified at the testing laboratory. ADDITIONAL REPORT WILL FOLLOW

Prevent Disease – Promote Wellness – Improve Quality of Life
Good News – No More Just Verbal Reports:

PCR on Non-respiratory clinical specimens sources has been validated by MDHHS!

Prevent Disease – Promote Wellness – Improve Quality of Life
Questions?

If questions come to mind later, the TB Lab can be reached at 517-335-9636

Prevent Disease – Promote Wellness – Improve Quality of Life
Latent TB Infection
MDSS Guidance

Shona Smith, MPH
MDHHS Tuberculosis Epidemiologist
smiths79@Michigan.gov
Determining Case Status

CSTE Case Definition
Determining Case Status

**Suspect**

A positive TST (as defined by CDC)  
**or**  
A positive IGRA (as defined by CDC)  
**AND**  
*M. Tuberculosis* complex was not isolated from a clinical specimen (if a specimen was collected)

**Confirmed**

A positive TST (as defined by CDC)  
**or**  
A positive IGRA (as defined by CDC)  
**AND**  
*M. Tuberculosis* complex was not isolated from a clinical specimen (if a specimen was collected)  
**AND**  
No clinical evidence compatible with TB Disease*

*No signs or symptoms consistent with TB Disease AND 1) Chest imaging without abnormalities consistent with TB (chest radiograph or CT scan) or 2) Abnormal chest imaging that could be consistent with TB Disease with microbiologic testing that is negative for MTB complex and where TB Disease has been clinically ruled out*
Completing the Detail Form

As Resources Allow
Report of Case of Latent Tuberculosis Infection
Michigan Department of Health and Human Services
Communicable Disease Division

### Investigation Information

<table>
<thead>
<tr>
<th>Investigation ID</th>
<th>Onset Date mm/dd/yyyy</th>
<th>Diagnosis Date mm/dd/yyyy</th>
<th>Referral Date mm/dd/yyyy</th>
<th>Case Entry Date mm/dd/yyyy</th>
<th>Case Completion Date mm/dd/yyyy</th>
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<table>
<thead>
<tr>
<th>LTBI State Case Number</th>
<th>LTBI City/County Case Number</th>
<th>Investigation Status</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Active</td>
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<table>
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<tr>
<th>Case Status</th>
<th>State Prison Case</th>
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<tbody>
<tr>
<td>Confirmed</td>
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</tr>
<tr>
<td>Suspect</td>
<td></td>
</tr>
<tr>
<td>Confirmed - Non Resident</td>
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</tr>
<tr>
<td>Not a Case</td>
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<tr>
<td>Unknown</td>
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<tr>
<td>Non-Michigan Case</td>
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</table>

<table>
<thead>
<tr>
<th>Patient Status</th>
<th>Patient Status Date mm/dd/yyyy</th>
<th>Part of an outbreak?</th>
<th>Outbreak Name</th>
<th>Case Updated Date mm/dd/yyyy</th>
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</table>
Patient Information

<table>
<thead>
<tr>
<th>Patient ID</th>
<th>First</th>
<th>Last</th>
<th>Middle</th>
</tr>
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</table>

<table>
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<th>Street Address</th>
<th>Within City Limits?</th>
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</thead>
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<tr>
<td></td>
<td>☐ Yes ☐ No ☐ Unknown</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>City</th>
<th>County</th>
<th>State</th>
<th>Zip</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Home Phone</th>
<th>Ext.</th>
<th>Other Phone</th>
<th>Ext.</th>
</tr>
</thead>
</table>

Residence Census QEOID: [GOI_B]  Report QEOID to the level of census tract [11 digits]. Geocoding available at: https://geocoding.geo.census.gov/geo przecedures/address.jsessionid=u-0Ty1S-pitShQ42LsyGUafFMH56QKlnnGSEjH7dijy247YnUmbi-1537032754?form

Parent/Guardian (required if under 18)

<table>
<thead>
<tr>
<th>First</th>
<th>Last</th>
<th>Middle</th>
</tr>
</thead>
</table>

Demographics

Sex
☐ Male ☐ Female ☐ Unknown

Date of Birth: mm/dd/yyyy

Age:

Age Units
☐ Days ☐ Months ☐ Years

Race
☐ Caucasian ☐ African American ☐ American Indian/Alaska Native ☐ Hawaiian/Pacific Islander (Specify) [Specify]

☐ Asian (Specify) ☐ Other (Specify) ☐ Unknown

Hispanic Ethnicity
☐ Hispanic/Latino ☐ Non-Hispanic/Latino ☐ Unknown

Arab Ethnicity
☐ Arab ☐ Non-Arab ☐ Unknown

Worksite/School

Occupations/Grade

MDOC ID

U.S.-born (born in 1 of the 50 U.S. states, the District of Columbia, a U.S. territory, or born abroad to a parent who was a U.S. citizen)

☐ Yes ☐ No ☐ Unknown

Country of Birth

Month-Year Arrived in the U.S. mm/dd/yyyy (if country of birth other than U.S.)
## Initial Patient Evaluation

### Initial Reason Evaluated for LTBI (select one)

- [ ] Public Health Activity
  - Contact Investigation
  - Immigration Medical Exam (includes Class B immigrant, refugee, and Civil Surgeon exams)
  - Other Public Health Department Activity

- [ ] Non-Public Health Screening Activity
  - Screening for Congregate Setting not done by Public Health Department (includes shelters, correctional facilities, schools, and rehab facilities)
  - Employment Clearance (includes health care workers and volunteers)
  - Student Clearance
  - Other Medical Risk Screening (e.g. HIV, TNF-blockers)

- [ ] Other Reasons
  - Positive TST/IGRA (outside of a contact investigation or organized screening program)
  - Abnormal Chest Radiograph (where TB symptoms were not the reason for the radiograph)
  - TB Symptoms
  - Other Reason Not Listed Above (specify) [ ]

### Source Case and Contact Investigation History

Is the likely source case for the patient's TB infection known?
- [ ] Yes  
  - (TB State Case Number of the source case) [ ]
- [ ] No  
- [ ] Unknown

Was the patient identified during the contact investigation, but not evaluated for TB at that time?
- [ ] Yes
- [ ] No
- [ ] Unknown

Was the patient not identified during the contact investigation of the source case (i.e., missed contact)?
- [ ] Yes
- [ ] No
- [ ] Unknown
### Testing for TB Infection

**Was a tuberculin skin test (TST) placed?**
- [ ] Yes
- [ ] No
- [ ] Unknown

**Interpretation of TST (select one)**
- [ ] Positive
- [ ] Negative

**TST Placement Date**

**TST Read Date**

**TST Result: Millimeters (mm) of induration (enter 99 for unknown):**

**Was an interferon gamma release assay (IGRA) done?**
- [ ] Yes
- [ ] No
- [ ] Unknown

**If yes, type of IGRA used (select one)**
- [ ] QuantIFERON-TB Test
- [ ] T-SPOT.TB Test
- [ ] Other, specify

**IGRA Result (select one)**
- [ ] Positive
- [ ] Negative
- [ ] Indeterminate/Borderline
- [ ] Failed/Invalid
- [ ] Unknown

**Date of IGRA specimen collection:**

**Chest Imaging**

**Was chest imaging done?**
- [ ] Yes
- [ ] No
- [ ] Unknown

**Type of Chest Imaging (select all that apply)**
- [ ] Standard X-ray
- [ ] Computed Tomography (CT)
- [ ] Other, specify
- [ ] Unknown

**Date of Chest Imaging:**

**Chest Imaging Interpretation (select one):**
- [ ] Normal (not consistent with TB)
- [ ] Abnormal (consistent with TB)
- [ ] Unknown
<table>
<thead>
<tr>
<th>Case ID</th>
<th>First Name</th>
<th>Last Name</th>
<th>Report of Case of Latent Tuberculosis Infection</th>
<th>Page 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Microbiologic Testing</strong></td>
<td></td>
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<tr>
<td>Was a sputum culture done?</td>
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<tr>
<td>○ Yes  ○ No  ○ Unknown</td>
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<tr>
<td>Sputum Culture Result</td>
<td>Sputum Culture Collection Date</td>
<td>Sputum Culture Report Date</td>
<td></td>
<td></td>
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<tr>
<td>○ Positive  ○ Negative  ○ Unknown</td>
<td>mm/dd/yyyy</td>
<td>mm/dd/yyyy</td>
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<tr>
<td>Was a culture done from another site (non-sputum)?</td>
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<tr>
<td>○ Yes  ○ No  ○ Unknown</td>
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<tr>
<td>Other Specimen Result (non-sputum):</td>
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<tr>
<td>○ Positive  ○ Negative  ○ Unknown</td>
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<tr>
<td>Enter anatomic code</td>
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<tr>
<td>Other Specimen Collection Date</td>
<td>Other Specimen Report Date</td>
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<td></td>
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<tr>
<td>mm/dd/yyyy</td>
<td>mm/dd/yyyy</td>
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</tbody>
</table>
# Epidemiologic Information

## Patient Immune Status

<table>
<thead>
<tr>
<th>HIV Status at Diagnostic Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Negative □ Positive □ Indeterminate □ Not Offered □ Refused □ Unknown</td>
</tr>
</tbody>
</table>

If Positive, State HIV/AIDS Patient Number: [ ]

If AIDS Reported 1993 or Later: [ ]

If Positive, Enter Date of most recent HIV Test: [mm/dd/yyyy] (If country of birth other than U.S.)

CD4 Count (cell/mm³): [ ]

Viral Load (copies/mL): [ ]

## Additional TB Risk Factors (select all that apply)

- □ None
- □ Cancer
- □ Diabetes Mellitus
- □ End-Stage Renal Disease
- □ Hepatitis B or C
- □ Pregnancy
- □ Post-organ Transplantation
- □ Smoking, specify: [ ]
- □ TNF-α Antagonist Therapy
- □ Other, specify: [ ]

## Patient Social Risk Factors

Lived outside U.S. for > 2 months?

- □ No □ Yes □ Unknown

If Yes, enter country (1): [ ]

If Yes, enter country (2): [ ]

If Yes, enter country (3): [ ]

Experienced Homelessness within the Past Year:

- □ No □ Yes □ Unknown

If no, has the patient ever experienced homelessness?

- □ No □ Yes □ Unknown

Resident of Correctional Facility at Time of Diagnostic Evaluation:

- □ No □ Yes □ Unknown

If yes, select type of correctional facility:

- □ Federal Prison
- □ State Prison
- □ Local Jail
- □ Juvenile Correction Facility
- □ Other Correctional Facility
- □ Unknown

Resident of Long-Term Care Facility at Time of Diagnostic Evaluation:

- □ No □ Yes □ Unknown

If yes, select type of long-term care facility:

- □ Nursing Home
- □ Mental Health Residential Facility
- □ Hospital-Based facility
- □ Alcohol or Drug Treatment Facility
- □ Residential Facility
- □ Other Long-Term Care Facility, specify: [ ]
- □ Unknown

Patient Ever Used Illicit Drugs:

- □ No □ Yes □ Unknown

(For the purposes of national surveillance, "illicit" drug use will be defined based on federal law, e.g. use of marijuana is illicit under federal law, regardless of its status under applicable state law)

If yes, specify which drugs: [ ]

Patient Ever Met the Criteria for Alcohol Use Disorder:

- □ No □ Yes □ Unknown

(Alcohol use disorder is a clinical diagnosis made using criteria outlined in the Diagnostic and Statistical Manual [DSM]. The criteria are at: https://pubs.niaaa.nih.gov/publications/dsmfactsheets/dsmfact.pdf)
### Treatment and Outcome Information

**Patient Started LTBI Treatment**
- [ ] Yes
- [ ] No

If No, primary reason treatment was not started (select one):
- [ ] Patient lost to follow-up
- [ ] History of previous treatment for TB or LTBI
- [ ] Treatment medically contraindicated
- [ ] Treatment not offered based on local clinical guidelines
- [ ] Patient refused
- [ ] Other, specify:
  - [ ]

**Initial LTBI Drug Regimen**
- [ ] Isoniazid (9 months; 9H)
- [ ] Isoniazid (6 months; 6H)
- [ ] Isoniazid/Rifapentine (3 months; 3HP)
- [ ] Rifampin (4 months; 4R)
- [ ] Other, specify:
  - [ ]

**LTBI Administration (select all that apply):**
- [ ] DOT (Directly Observed Therapy)
- [ ] EDOT (Electronic Directly Observed Therapy)
- [ ] Self-Administered
- [ ] Other, specify:
  - [ ]

**Date Therapy Stopped mm/dd/yyyy**
- [ ]

**Reason Therapy Stopped (select one):**
- [ ] Completed Therapy
- [ ] Lost to Care
- [ ] Patient Choice
- [ ] Pregnancy
- [ ] Not LTBI
- [ ] Other, specify:
  - [ ]

- [ ] Developed TB. TB State Case Number:
  - [ ]

- [ ] Adverse Event Related to LTBI Treatment (select all that apply):
  - [ ] Hospitalized: [ ] Yes
  - [ ] No
  - [ ] Unknown
  - [ ] Died: [ ] Yes
  - [ ] No
  - [ ] Unknown

*(Please immediately report all adverse events resulting in hospitalization or death to CDC at LTBIevents@cdc.gov)*

- [ ] Completed LTBI treatment but developed TB
- [ ] TB State Case Number:
  - [ ]

---

(Please immediately report all adverse events resulting in hospitalization or death to CDC at LTBIevents@cdc.gov)
### Referral Information

**Person Providing Referral**

<table>
<thead>
<tr>
<th>First</th>
<th>Last</th>
<th>Phone</th>
<th>Ext</th>
<th>Email</th>
</tr>
</thead>
</table>

**Primary Physician**

<table>
<thead>
<tr>
<th>First</th>
<th>Last</th>
<th>Phone</th>
<th>Ext</th>
<th>Email</th>
</tr>
</thead>
</table>

**Street Address**

<table>
<thead>
<tr>
<th>City</th>
<th>County</th>
<th>State</th>
<th>Zip</th>
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</thead>
</table>

### Case Notes

Notes

### Lab Results

<table>
<thead>
<tr>
<th>Report Date</th>
<th>Test Name</th>
<th>Reported Test Name</th>
<th>Test Result</th>
<th>Specimen</th>
<th>Collection Date</th>
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<tbody>
<tr>
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**No Labs**
Closing a Case of LTBI in MDSS

Treatment Start and Treatment Completion
### When to “Complete” LTBI Investigations for Cases

#### After Treatment Initiation
- ✓ A diagnosis of LTBI is verified
- ✓ “Suspect” or “Confirmed” case status is selected
- ✓ Detail form is as complete as possible (except treatment completion information)
- ❑ Change Investigation Status to “Completed”
- ❑ Then Change Investigation Status to “Completed – Follow Up”

#### After Treatment Completion
- ✓ Confirmation that treatment stopped (whether or not full course was completed)
  - OR
- ✓ Patient lost to Follow-Up
  - ❑ Enter “Date Therapy Stopped,” “Reason Therapy Stopped,” and TB Info if applicable
  - ❑ Change Investigation Status to “Completed”
Open Forum
Thank you!

Meeting notes and presentations will be sent to everyone on the TB Nurse Network list and posted on our website.

Next TBNN meeting
Wednesday, April 18th, 2018
10-11:30 AM ET

Please contact Helen McGuirk with questions, comments, or suggestions for presentations and content:
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517-284-4957