Nurse Case Management for Active Tuberculosis (TB) Disease

Wisconsin Tuberculosis Program | Bureau of Communicable Diseases | Division of Public Health | Department of Health Services

Phone: (608) 261-6319
# Nurse Case Management for Active TB Disease

## Table of Contents

- Purpose and Definitions .......................................................... 3
- Abbreviations .............................................................................. 4
- Timeline ....................................................................................... 5

- Time Frames & Task Lists
  - Month 1- Week 1 ................................................................. 8
  - Month 1- Week 2 ................................................................. 10
  - Month 1- Weeks 3 & 4 ......................................................... 12
  - Month 2 ............................................................................... 14
  - Months 3 through 5 ............................................................ 16
  - Months 6 through 9 ............................................................. 17
- Appendix ..................................................................................... 19
Purpose:

The checklist and timeline contained in this document are designed to assist public health nurses/TB case managers when caring for a patient with active TB disease. The checklist provides a systematic way to gather information on a TB patient to ensure the best medical and public health practices and outcomes.

Case Definitions

1. Laboratory Confirmed Case
   - Isolation of \textit{M. tuberculosis} complex from culture of a clinical specimen, or
   - Demonstration of \textit{M. tuberculosis} from a clinical specimen by nucleic acid amplification test such as PCR, GeneXpert® or Mycobacterium tuberculosis Direct (MTD®) test.

2. Clinical Case
   In the absence of a laboratory confirmation of \textit{M. tuberculosis}, a person must meet \textbf{ALL} of the following criteria to be considered a clinical case of tuberculosis:
   - Positive tuberculin skin test or IGRA
   - Signs and symptoms compatible with TB (e.g., abnormal chest x-ray, abnormal chest CT scan, or clinical evidence of current disease such as fever, night sweats, cough, weight loss, hemoptysis)
   - Receiving treatment with two or more anti-tuberculosis medications

3. Provider Diagnosis
   If a case does not meet the laboratory or clinical definition, the case may be counted as a verified case of tuberculosis by provider diagnosis if evidence of TB is present and a client shows clinical improvement with medications.
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFB</td>
<td>Acid-fast bacilli</td>
</tr>
<tr>
<td>CBC</td>
<td>Complete blood count</td>
</tr>
<tr>
<td>CDC</td>
<td>Centers of Disease Control and Prevention</td>
</tr>
<tr>
<td>CT</td>
<td>Computed tomography</td>
</tr>
<tr>
<td>CXR</td>
<td>Chest x-ray</td>
</tr>
<tr>
<td>DOT</td>
<td>Directly observed therapy</td>
</tr>
<tr>
<td>EMB</td>
<td>Ethambutol</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
</tr>
<tr>
<td>IGRA</td>
<td>Interferon gamma release assay</td>
</tr>
<tr>
<td>INH</td>
<td>Isoniazid</td>
</tr>
<tr>
<td>LFTs</td>
<td>Liver function tests</td>
</tr>
<tr>
<td></td>
<td>• Alanine aminotransferase (ALT)</td>
</tr>
<tr>
<td></td>
<td>• Aspartate aminotransferase (AST)</td>
</tr>
<tr>
<td></td>
<td>• Bilirubin</td>
</tr>
<tr>
<td>LTBI</td>
<td>Latent Tuberculosis Infection</td>
</tr>
<tr>
<td>NAAT</td>
<td>Nucleic acid amplification test</td>
</tr>
<tr>
<td>PCR</td>
<td>Polymerase chain reaction: A type of nucleic acid amplification test used to detect <em>M. tuberculosis</em> bacterial DNA</td>
</tr>
<tr>
<td>PHN</td>
<td>Public Health Nurse</td>
</tr>
<tr>
<td>PZA</td>
<td>Pyrazinamide</td>
</tr>
<tr>
<td>RIF</td>
<td>Rifampin</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>TST</td>
<td>Tuberculin skin test</td>
</tr>
<tr>
<td>WEDSS</td>
<td>Wisconsin Electronic Disease Surveillance System</td>
</tr>
<tr>
<td>WI</td>
<td>Wisconsin</td>
</tr>
<tr>
<td>WTBP</td>
<td>WI Tuberculosis Program</td>
</tr>
<tr>
<td>WSLH</td>
<td>Wisconsin State Laboratory of Hygiene</td>
</tr>
</tbody>
</table>
# Timeline for the Management of Patients with Pan-sensitive TB
(Susceptible to the four TB first-line drugs: INH, RIF, EMB, and PZA)

<table>
<thead>
<tr>
<th>MONTH</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6&lt;sup&gt;10,12&lt;/sup&gt;</th>
<th>7&lt;sup&gt;12&lt;/sup&gt;</th>
<th>8&lt;sup&gt;12&lt;/sup&gt;</th>
<th>9&lt;sup&gt;11,12&lt;/sup&gt;</th>
<th>Completion of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Intensive Phase: INH, RIF, EMB, PZA&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Continuation Phase: INH, RIF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>DOT&lt;sup&gt;2&lt;/sup&gt;</td>
<td>DOT&lt;sup&gt;2&lt;/sup&gt;</td>
<td>DOT</td>
<td>DOT</td>
<td>DOT</td>
<td>DOT</td>
<td>DOT</td>
<td>DOT</td>
<td>DOT</td>
<td></td>
</tr>
<tr>
<td>Patient Education</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Baseline Tests</td>
<td>✓&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow-up Tests</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Monitor visual acuity and color vision while on EMB (monthly). Monitor uric acid while on PZA (monthly). Other tests if baseline values abnormal, if adverse reactions develop, or if other clinical indications.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiography (CXR or CT)</td>
<td>✓</td>
<td>✓&lt;sup&gt;7&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓&lt;sup&gt;7&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Clinical evaluation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Monitoring&lt;sup&gt;3&lt;/sup&gt;</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>• Adherence to treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Response to treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Medication side effects or adverse reactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sputum specimens</td>
<td>x&lt;sup&gt;3&lt;/sup&gt;&lt;sup&gt;5&lt;/sup&gt;</td>
<td>x&lt;sup&gt;1&lt;/sup&gt;&lt;sup&gt;6&lt;/sup&gt;</td>
<td>x&lt;sup&gt;1&lt;/sup&gt;&lt;sup&gt;6,8&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Drug susceptibility tests</td>
<td>✓&lt;sup&gt;9&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PZA may be omitted if the patient is pregnant. The continuation phase is increased to seven months in this case.

Medication administration:

1. **Intensive Phase** (2 months): The WTBP recommends medications be administered seven days per week by DOT for at least the first two weeks of therapy. For the remaining 6-weeks of intensive phase treatment, medications may be administered five days per week by DOT, with the remaining two doses self-administered over the weekend. If unable to administer five days a week DOT, the provider and health department may consider a thrice-weekly DOT regimen (dosing adjustments required).

2. **Continuation Phase** (4 months or more): Medications should be administered five days per week by DOT or thrice-weekly by DOT for the remainder of treatment depending on the patient’s response to treatment.

Recommended baseline tests: LFTs (ALT, AST and total bilirubin), uric acid, CBC, renal panel, glucose (A1c), visual acuity/color, HIV and monthly weight.

Conduct in-person interviews to assess adherence and monitor improvement in symptoms (e.g., cough, fever, fatigue, night sweats) as well as monitor development of adverse reactions to medications (e.g., jaundice, dark urine, nausea, vomiting, abdominal pain, fever, rash, anorexia, malaise, neuropathy, arthralgia).

For diagnosis of TB, collect three initial sputum specimens for AFB smear and culture, 8 to 24 hours apart, with at least one early morning specimen (observe collection if possible). On initial smear-positive sputum specimens, obtain a rapid molecular detection test (NAAT). If the culture results are positive, order drug susceptibility testing. If susceptibility testing shows INH and RIF resistance, then order testing to second line drugs. For patients with positive AFB sputum smears at diagnosis, collect sputum regularly until three consecutive specimens are negative. The following guidelines should be used:

- **Patients with cavities and/or with sputum smears that are 3+ (moderate) or 4+ (many):** Wait two or more weeks after start of treatment to collect first follow-up sputum. If the first sputum is smear negative, obtain second sputum. If the second is smear-negative, obtain a third. If any are smear positive, wait one week and start the process over.

- **Patients without cavities and/or with sputum smears that are 1+ (rare) or 2+ (few):** A single sputum can be collected after 1 week of treatment. If the first sputum is smear-negative, obtain a second sputum specimen. If the second is smear-negative, obtain a third. If any are smear-positive, wait one week and start the process over.

- **Once three consecutive sputum specimens are smear-negative, the patient can be considered for release from isolation (See Table 1 in appendix).** Sputum should be then collected monthly (in sets of three) until conversion to culture negative is documented.

Follow-up specimens: Collect sputum monthly (in sets of three) until two consecutive specimens are negative by culture to document culture conversion. Continue to collect sputum to the end of treatment if possible. Infectious patients in isolation may have specimens collected more frequently to monitor response to treatment and to determine when they become non-infectious.

For patients with positive cultures at diagnosis, a repeat CXR or CT at completion of two months of treatment and/or at completion of therapy is useful. For patients with negative initial cultures, a CXR or CT is necessary after two months of treatment and a CXR or CT at completion of therapy is desirable.
If smear and/or culture are still positive after two months of treatment, consult with experts. If culture is positive after three months, consider drug resistance, nonadherence, or poor drug absorption (90-95% of TB patients will be culture negative after 3 months of treatment). If sputum culture is still positive after four months of treatment, the patient is considered to be in treatment failure and consultation with experts is necessary.

If results show INH and RIF resistance, order drug susceptibility testing for second-line drugs. Call WSLH to arrange.

Month 6 is the final month for patients on the 4-month continuation phase regimen who have taken their anti-TB medications on schedule.

Month 9 is the final month for patients on the 7-month continuation phase regimen who have taken their anti-TB medications on schedule.

**CAUTION:** Some patients may have adherence or medical issues that lengthen the duration of their treatment.
Time Frames & Task Lists

Month 1 – Week 1

Start of Initial Assessment (within 24 hours of notification of a case report)
- Receive the TB suspect/case report and notify the WTBP.
- Enter TB suspect/case into WEDSS.
- Assign the case manager.
- Take infection control precautions: Isolate the patient, if necessary (if the patient has positive AFB sputum smear results and/or cough and/or cavitary disease OR high suspicion for active TB even if smear-negative).

Initial Interviews and Consultations
- Call the responsible clinician to explain the role of the health department (see Form 1 in appendix) and arrange for a medical examination of the client as soon as possible.
- Obtain initial baseline tests from clinician (HIV, LFTs, alkaline phosphate, creatinine, platelets, uric acid), perform vision (color/acuity) tests, and obtain weight.
- Interview the patient in person (i.e., face to face) within ≤ 1 business day of the case report.
  - Provide patient education.
  - Collect patient data to determine infectious period (see Table 2 in appendix).
  - Identify source of infection, if possible. Source investigations are particularly important when young children present with active TB disease.
  - Gather contact investigation data if needed.
  - If any household contact is less than 5 years of age, then see window prophylaxis guidance (American Academy of Pediatrics Red Book recommendations – all contacts less than 5 years should receive INH therapy even if testing is negative).
  - Identify patient insurance status, housing needs, and other social needs.

Medical Evaluation
- Assure a medical evaluation of the patient within one week of notification of the case report.
- Gather medical history.
- Conduct a physical examination.
- Administer, measure, and interpret a TST or IGRA, if not already done.
- Order chest radiography (CT or CXR), if not already done. This is performed for both pulmonary and extrapulmonary cases.
- Collect and submit 3 sputum specimens for AFB smear and culture, if not already done. Obtain specimens 8 to 24 hours apart with one being an early morning specimen. Arrange specimen transportation with WSLH. This is performed for both pulmonary and extrapulmonary cases.
- Start TB treatment with four drug therapy within 48 hours of high suspicion or TB diagnosis.
- Complete initial request for medications form (DHS form F-44000) and identify pharmacy or address where PHN will pick up medications. Send completed form to the WTBP for processing.
After AFB Sputum Smear Testing Completed

- Receive results of AFB sputum smear tests (turn-around time from WSLH is 24 hours).
- On initial specimens, obtain the rapid molecular detection NAAT, if needed to quickly confirm diagnosis of TB for a patient with positive AFB sputum smear (turn-around time from WSLH is 24-48 hours).
- Determine the patient’s infectious period: usually count three months back from start of symptoms (cough, weight loss, fever, chest pain, night sweats; see Table 2 in appendix).

After Sufficient Medical and Laboratory Assessment Data Gathered

- For hospitalized patient, clarify the hospital discharge arrangements and assure that they are communicated to the hospital’s outpatient coordinator, treating clinician(s), and local health department. Provide discharge guidance to hospital, as needed.
- Obtain baseline tests for toxicity monitoring (suggested tests: LFTs, uric acid, CBC, renal panel, glucose (A1c), visual acuity/color, HIV, weight).
- Complete clinician and public health agreement form (see Form 1 in appendix for example).
- Assure that a written treatment plan is developed (see Form 2 in appendix for example).
- Assure that education is provided to the patient and responsible clinician(s) as needed when their signatures are obtained on the treatment plan.
- Begin implementing the treatment plan. Implement DOT.
- Enter lab results, medications, medical records, and treatment plan into WEDSS.

Decision to Conduct Contact and/or Field Investigations

- Gather the index patient’s medical records (from hospital, clinic, and/or healthcare providers) and enter information into WEDSS.
- Decide if a contact investigation is indicated based on positive AFB sputum smear results and/or cavitary disease or pleural TB (see Figure 1 in appendix).
- If an investigation is indicated, start the contact investigation within ≤ 3 business days of notification of the suspect or confirmed case.

Contact List

- During the index patient interview, start listing names and location information of named contacts. Continue listing them throughout the investigation.
- Assign an initial priority classification to each contact; revise as needed when new information is received.
- Review all documentation to ensure that the contact list is complete.
- Report contacts to WTBP within 2 weeks of notification of the case report; enter contact information into WEDSS.
Month 1 – Week 2

Case Management of Index Patient

- Provide DOT and assess adherence and side effects/adverse reactions at each visit.
- Follow up with missed appointments on the same day.
- If the initial sputum specimens had positive AFB smear results quantified as 1+ (rare) to 2+ (few) and/or no cavitation, collect a single sputum after 1 week of treatment. If the first sputum is smear-negative, obtain a second sputum. If the second is smear-negative, obtain a third. If any are smear-positive, wait one week and start the process over. Do this process until three consecutive negative AFB sputum smear results are reported (this usually occurs within two months of treatment).

If the patient initially had positive AFB sputum smear results quantified as 3+ (moderate) to 4+ (heavy) and/or cavitation, wait until after two weeks of treatment to collect the first follow-up sputum, following same procedure as above.

- Reassess lab results and clinical information of the index patient weekly until drug susceptibility results are available, and then reassess at least monthly.
- Drug susceptibility test reports are usually available within 28 days (first line drugs). Initial molecular results are available for RIF within 24-48 hours of diagnosis. If results show drug resistance, contact the WTBP for consultation and notify medical provider.
- Reassess treatment, side effects, and adherence, and if concerned, consult with the treating clinician. If a change is decided upon, obtain new clinician’s order and submit a new medication request form (DHS form F-44000) to WTBP.
- If the patient has pulmonary TB (lung, pleural, miliary, laryngeal) and is isolated, determine whether isolation can be discontinued based on negative smear and drug susceptibility test results (see Table 1 in appendix).
- If the patient has extrapulmonary TB and is isolated, determine whether isolation can be discontinued based on negative smear and drug susceptibility test results (see Table 1 in appendix).

Field Investigation and Interviews

- Complete the field investigation (visiting all potential transmission sites) within five days after starting the investigation.
- Re-interview the index patient in their home within 1-2 weeks after the first interview.

Contact Evaluation

- Assure that face-to-face initial encounters and TST or IGRAs are conducted among high- and medium- priority contacts within seven days after being listed in the investigation. For interpreting the TST, an induration transverse diameter of ≥ 5 mm is positive for any contact. High priority contacts include children and/or those who have high risk factors.

Consider window prophylaxis for any household contact less than five years of age or with HIV infection, even if testing is negative, once active disease is ruled out.
For each high priority contact with a positive TST or IGRA, assure that medical evaluations are conducted (including history and CXR) and treatment is started for LTBI within five days or as soon as possible after initial encounter with contact.

Assure that medical evaluations are conducted of high-priority contacts that have signs or symptoms of disease within five days after initial encounter with contact, regardless of test result.

Assure that medical evaluations are conducted of high-priority contacts to index patients with negative AFB sputum smear and medium-priority contacts within ten days after initial encounter with contact.

Review and assess the completeness of contacts’ medical follow-up and treatment plans within five days after their medical evaluations.

Data Review and Reporting

Continue to collect copies of medical evaluations (i.e., lab results, CXR, history and physical, etc.) from the treating clinician; enter information into WEDSS.

Each week, review documentation to ensure that contact list is complete. Enter documentation into WEDSS.

Each week, collect and analyze data on contacts including TST/IGRA results. Enter contact information into WEDSS. Reassesses contact priorities.

Decide whether to continue/expand the investigation based on analysis of TST or IGRA data.

Report the contact list to WTBP after initial TST or IGRA testing is completed.
Month 1 – Weeks 3 and 4

Case Management of Index Patient

☐ Provide DOT and assess adherence and side effects/adverse reactions at each visit.
☐ Follow up on missed appointments on the same day.
☐ If the initial sputum specimens had positive AFB smear results quantified as 1+ (rare) to 2+ (few) and/or no cavitation, collect a single sputum after 1 week of treatment. If the first sputum is smear-negative, obtain a second sputum. If the second is smear-negative, obtain a third. If any are smear-positive, wait one week and start the process over. Do this process until three consecutive negative AFB sputum smear results are reported (this usually occurs within two months of treatment).

If the patient initially had positive AFB sputum smear results quantified as 3+ (moderate) to 4+ (heavy) and/or cavitation, wait until after two weeks of treatment to collect the first follow-up sputum, following same procedure as above.

☐ Reassess lab results and clinical information of the index patient weekly until drug susceptibility results are available and then reassess at least monthly.
☐ Drug susceptibility test reports are usually available within 28 days (first-line drugs). If results show drug resistance then contact the WTBP for consultation.
☐ Reassess treatment, side effects, and adherence, and if concerned, consult with the treating clinician. If a change is decided upon, obtain new clinician’s order and submit a new medication request form (DHS form F-44000) to WTBP.
☐ If the patient is isolated, determine whether isolation can be discontinued based on negative smear and drug susceptibility test results (see Table 1 in appendix).

Newly Identified Contact Evaluation and Treatment

☐ Assure that face-to-face initial encounters and TST or IGRA testing are conducted among high- and medium-priority contacts within seven days after being listed in the investigation. For interpreting the TST, an induration transverse diameter of ≥ 5 mm is positive for any contact. High priority contacts include children and/or those who have high risk factors.
☐ For each high priority contact with a positive TST or IGRA, assure that medical evaluations are conducted (including history and CXR) and treatment is started for LTBI within five days or as soon as possible after initial encounter with contact.
☐ Assure that medical evaluations are conducted for high-priority contacts that have signs or symptoms of disease within five days after initial encounter with contact, regardless of test result.
☐ Assure that medical evaluations are conducted of high-priority contacts to index patients with negative AFB sputum smear and medium-priority contacts within ten days after initial encounter with contact.
Data Review and Reporting

☐ Continue to collect copies of medical evaluations (i.e., lab results, CXR, history and physical, etc.) from the treating clinician, enter information into WEDSS.

☐ Each week, review documentation to ensure that contact list is complete. Enter documentation into WEDSS.

☐ Each week, collect and analyze data on contacts including TST/IGRA results. Enter contact information into WEDSS. Reassesses contact priorities.

☐ Decide whether to continue/expand the investigation based on analysis of TST or IGRA data.

☐ Review the case with WTBP and report any new TST or IGRA positive results from contact list.
Month 2

Case Management of Index Patient

- Provide DOT and assess adherence and side effects/adverse reactions at each visit.
- Follow up on missed appointments on the same day.
- Conduct ongoing assessment and monitoring at least monthly (clinical response, adverse reactions, adherence) and monthly weight.
- Repeat liver function tests (AST, ALT, and bilirubin) when the patient is taking INH, a rifamycin, or PZA if:
  - Baseline results are abnormal.
  - Patient is pregnant, in the immediate postpartum period, or at high risk for adverse reactions.
  - Patient has symptoms of adverse reactions.
- Question the patient taking ethambutol monthly regarding possible visual disturbances.
- Test visual acuity and color discrimination monthly when the patient is taking ethambutol:
  - In doses > 15-20 mg/kg (the recommended range).
  - For > 2 months.
  - With renal insufficiency.
- If the initial sputum specimens had positive AFB smear results quantified as 1+ (rare) to 2+ (few) and/or no cavitation, collect a single sputum after 1 week of treatment. If the first sputum is smear-negative, obtain a second sputum. If the second is smear-negative, obtain a third. If any are smear-positive, wait one week and start the process over. Do this process until three consecutive negative AFB sputum smear results are reported (this usually occurs within two months of treatment).

  If the patient initially had positive AFB sputum smear results quantified as 3+ (moderate) to 4+ (heavy) and/or cavitation, wait until after two weeks of treatment to collect the first follow-up sputum, following same procedure as above.

- If the patient has negative AFB sputum smear results, each month collect sputum specimens and submit them for testing until two consecutive negative culture results are reported.
- If sputum culture results are positive after two months of treatment, call the WTBP for a consultation.
- Receive culture results (WSLH incubates cultures for six weeks before reporting as negative).
- If the patient is isolated, determine whether isolation can be discontinued (see Table 1 in appendix).
- Reassess labs and clinical information about the index patient weekly until drug susceptibility results are available or for two months after the case report, whichever is longer.
- Reassess treatment, side effects, and adherence and, if concerned, consult with the treating clinician. If a change is decided upon, obtain new clinician’s orders and submit a new medication request form (DHS form F-44000) to WTBP.
- Send updates with changes in treatment plan to WTBP.
Contact Evaluation and Treatment

- Assure that contacts are assessed monthly for:
  - Clinical follow-up.
  - Adherence to LTBI treatment.
  - Adverse reactions to LTBI treatment.
- For contacts with initial negative results, repeat TST or IGRA testing 8 to 10 weeks after each contact’s last exposure to the index patient during the infectious period.
- After retesting, reevaluate contacts who were initially TST negative or IGRA negative and started on LTBI treatment to determine if treatment should be continued. Discuss with ordering provider.

Data Review and Reporting

- Each week, review documentation to ensure that contact list is complete. Enter documentation into WEDSS.
- Each week, collect and analyze data on contacts including TST/IGRA results. Enter contact information into WEDSS. Reassesses contact priorities.
- Decide whether to continue/expand the investigation based on analysis of TST or IGRA data.
- Report to the WTBP after initial TST or IGRA is completed.
- Call the WTBP to provide a case status report.
Case Management of Index Patient

- Provide DOT and assess adherence and side effects/adverse reactions at each visit.
- Follow up on missed appointments on the same day.
- Conduct ongoing assessment and monitoring at least monthly (clinical response, adverse reactions, adherence) and monthly weight.
- When the patient has negative AFB sputum smear results, each month collect sputum specimens and submit them for testing until two consecutive negative culture results are reported.
- If sputum culture results are positive after two months of treatment, call the WTBP for a consultation.
- If index patient can produce sputum sample, collect one sputum monthly to assess for relapse and/or treatment failure.
- Repeat liver function tests (AST, ALT, and bilirubin) when the patient is taking INH, a rifamycin, or PZA if:
  - Baseline results are abnormal.
  - Patient is pregnant, in the immediate postpartum period, or at high risk for adverse reactions.
  - Patient has symptoms of adverse reactions.
- Question the patient taking ethambutol monthly regarding possible visual disturbances, including blurred vision or color blindness.
- Test visual acuity and color discrimination monthly when the patient is taking ethambutol:
  - In doses > 15-20 mg/kg (the recommended range).
  - For > 2 months.
  - With renal insufficiency.
- Reassess treatment, side effects, and adherence and, if concerned, consult with the treating clinician. If a change is decided upon, obtain new clinician’s orders and order drugs.
- Send updates with changes in treatment plan to the WTBP.

Contact Evaluation and Treatment

- Assure that contacts are assessed monthly for:
  - Clinical follow-up.
  - Adherence to LTBI treatment.
  - Adverse reactions to LTBI treatment.
- Verify completion of treatment 3 to 9 months after treatment was started (depending upon regimen, adherence, number of weeks on treatment and/or number of doses taken).
- Each week, review documentation to ensure that the contact list is complete and entered into WEDSS.

Data Review and Reporting

- Each week, review documentation to ensure adequate care.
- Call the WTBP monthly to provide a case status report.
### Months 6 through 9

#### Case Management of Index Patient

- Provide DOT and assess adherence and side effects/adverse reactions at each visit.
- Follow up on missed appointments on the same day.
- Conduct ongoing assessment and monitoring at least monthly (clinical response, adverse reactions, adherence) and monthly weight.
- If index patient can produce sputum sample, collect one sputum monthly to assess for relapse and/or treatment failure.
- Repeat liver function tests (AST, ALT, and bilirubin) when the patient is taking INH, a rifamycin, or PZA if:
  - Baseline results are abnormal.
  - Patient is pregnant, in the immediate postpartum period, or at high risk for adverse reactions.
  - Patient has symptoms of adverse reactions.
- Question the patient taking ethambutol monthly regarding possible visual disturbances, including blurred vision or color blindness.
- Test visual acuity and color discrimination monthly when the patient is taking ethambutol:
  - In doses > 15-20 mg/kg (the recommended range).
  - For > 2 months.
  - With renal insufficiency.
- Reassess treatment, side effects, and adherence and, if concerned, consult with the treating clinician. If a change is decided upon, obtain new clinician’s orders and order drugs.
- Verify completion of treatment 6 to 9 months after treatment was started (depending upon regimen, adherence, response to treatment, number of weeks on DOT, and number of doses taken).
- Send updates with changes in treatment plan to WTBP.

#### Contact Treatment and Investigation

- Assure that contacts are assessed monthly for:
  - Clinical follow-up.
  - Adherence to LTBI treatment.
  - Adverse reactions to LTBI treatment.
- Verify completion of treatment 3 to 9 months after treatment was started (depending upon regimen, adherence, number to weeks on treatment and/or number of doses taken).
- Each week, review documentation to ensure that the contact list is complete and entered into WEDSS.
Completion of Treatment

☐ Provide letter of completion to clinician and patient. DHS form F-02474 can be used for this purpose.

☐ Assure that a final medical evaluation of the patient is completed, including:
  ☐ CXR or CT
  ☐ Patient education
  ☐ Sputum specimen, if possible
  ☐ LFTs
  ☐ Obtain copies and upload via WEDSS or fax to WTBP.

☐ Make a case summary in WEDSS Notes section.

☐ Notify WTBP of completion of treatment and document in WEDSS.

Questions?

Call or email the Wisconsin TB Program

(608) 261-6319
dhswitbprogram@dhs.wisconsin.gov
Appendix

Table 1. WTBP Guidelines for Release of Home Isolation

Patients with pulmonary TB can be released from home isolation when all criteria are met:
- Patient has 3 consecutive negative AFB sputum smears, at least 8 hours apart.
- Patient has received appropriate anti-tuberculosis medication for two weeks and is compliant.
- Patient is clinically improving.
- Patient has plan for follow-up care.

Figure 1. Decision to initiate a tuberculosis (TB) contact investigation

Table 2. Guidelines for estimating the beginning of the period of infectiousness of persons with tuberculosis (TB), by index case characteristic

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>TB symptoms</th>
<th>AFB* sputum smear positive</th>
<th>Cavitary chest radiograph</th>
<th>Recommended minimum beginning of likely period of Infectiousness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>3 months before symptom onset or first positive finding (e.g., abnormal chest radiograph) consistent with TB disease, whichever is longer</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>3 months before symptom onset or first positive finding consistent with TB disease, whichever is longer</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>4 weeks before date of suspected diagnosis</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>3 months before first positive finding consistent with TB</td>
</tr>
</tbody>
</table>

**SOURCE:** California Department of Health Services Tuberculosis Control Branch; California Tuberculosis Controllers Association. Contact investigation guidelines, Berkeley, CA: California Department of Health Services; 1998.

* Acid-fast bacilli.

Form 1. Example of Clinician and Public Health Agreement Form

Coordination of Tuberculosis Care with Public Health

Provider: ________________________________________________
Address: ________________________________________________
Patient: ___________________________ DOB: ______________________

Dear Dr.____________:

The purpose of this letter is to confirm arrangements made by phone for the above-named TB patient. The coordination of care will help assure a successful outcome. Treatment will follow the current American Thoracic Society/Centers for Disease Control and Prevention/Infectious Disease Society of America TB guidelines¹.

- You agree to notify us, by phone, of any problems or medication order changes, and follow up in writing.
- We will notify you, by phone, if problems arise with dispensing TB medications.
- We will provide DOT (directly observed therapy) as required for all TB patients in Wisconsin.

1. You / We will obtain month monthly sputums for AFB smear and culture until the patient is culture negative (for pulmonary cases)
2. You / We will obtain baseline hepatic enzymes, bilirubin, serum creatinine, CBC, platelet count; and monitor these monthly labs as needed.
3. You / We will obtain baseline and monthly uric acid levels while the patient is on PZA.
4. You / We will obtain baseline and monthly visual acuity (Snellen test) and red-green color blind testing while the patient is on Ethambutol.
5. You / We will obtain baseline and monthly symptom review for side effects to TB meds.

Treatment plan:

- Planned treatment course: ___standard 6 months² or: ____________________________

- If cultures are negative, case will be re-evaluated at 2 months to assess for clinical response and the diagnosis will be updated from “suspected case of TB” to “confirmed case of TB” or “active TB ruled out”, and the treatment plan will be adjusted appropriately.

Thank you for your cooperation in providing the best chance of successful treatment for this patient.

Sincerely,

1 CDC. Treatment of Tuberculosis, ATS, CDC, and IDSA. MMWR 2016; 63(7), p. e147-e195

2 Standard 6 month regimen appropriate if the isolate is susceptible to INH and RIF, and the patient is adherent to treatment and has a good clinical response. If culture negative active TB and patient is not from a country with a high rate of drug resistance then the 4-month regimen may be used. If non-adherence, poor clinical response or drug resistance is documented the regimen should be changed/extended as appropriate.
Form 2. Example of Treatment Agreement Form

Active TB Disease Treatment Agreement

Health Department: ________________________________
Address: _______________________________________
Phone: _______________________________________

_____________________________________________ ‘s TB Treatment Agreement
(Patient’s first and last name)

I understand I need to follow the Active TB Disease Treatment Agreement in order to:
• Stop the spread of TB to my family, friends and others, and
• Make sure I finish the treatment to cure my TB.

I agree to do the following:
1. I will take my pills until my doctor says I am cured.
2. I will see_______________________to take my pills.
   (Case Manager or DOT worker)

I understand that someone will watch me take my pills.
3. I will call the case manager if I can’t get to my appointment. I must ask to reschedule. The phone number is _______________________________.
   Day: M T W Th F S Time: ______________ Where: _______________________________
4. I will wear a mask until I am told I can stop. I have been shown the right way to wear a mask and understand where to get masks.
5. I will give sputum samples when asked.
6. I will have a chest x-ray as scheduled.
7. I agree to not take drugs, drink alcohol, or do anything that would make my TB pills not work.
8. I will call the case manager at ___________________________ IF:
   (Phone)
   • The TB pills make me feel bad or I feel my symptoms are worse.
   • I leave ____________________________County for more than one day.
   • I move while I am taking my pills.

If I do not follow all of the steps in my treatment agreement:
1. I understand I will not get better.
2. The Local Health Officer may order me into isolation in a hospital or send me to jail to prevent others from getting sick.
I have read my Treatment Agreement. I understand the steps I must take to cure my TB.

I have had a chance to ask the case manager questions about my TB treatment, and I agree to follow the above steps to cure my TB.

Name: ___________________________ Date: __________________

Nurse / Witness: ______________________ Date: ________________

Interpreter: __________________________ Date: ________________