Kansas
Department of Health and Environment
Division of Health

Latent Tuberculosis Infection Investigation Guideline

Contents

Revision History:

Date	Replaced	Comments
01/2022	**-**	Released.

Latent Tuberculosis
Disease Management and Investigative Guidelines

CASE DEFINITION (2021)

Clinical Description for Public Health Surveillance:

Latent TB Infection (LTBI) is diagnosed by medical history, physical examination, chest x-ray and other laboratory tests. If a person has a positive TB test result, a negative chest x-ray, and a medical evaluation does not indicate TB disease (i.e. the patient does NOT have symptoms) the person is diagnosed with LTBI. Latent TB has several treatment options (Rifampin daily, Isoniazid and Rifampin weekly, or Isoniazid daily) and a treatment regimen should be selected based on a patient's risk for developing TB disease, their medical history, and the recommendation of a health care provider.

If a patient has any of the following symptoms, they should be evaluated for **Active TB disease** NOT LTBI:

- Unexplained weight loss
- Loss of appetite
- Night sweats
- Fever
- Fatigue
- Coughing for greater than 3 weeks
- Hemoptysis (coughing up blood)
- Chest pain

Clinical Criteria for Tuberculosis Disease:

People suspected of having TB disease should be referred for a complete medical evaluation, which should include the following:

- **Medical History**
- Clinicians should ask about the patient's history of TB exposure, infection, or disease. It is also important to consider demographic factors (e.g. country of origin, age, ethnic or racial group, occupation, history of travel outside the US) that may increase the patient's risk for exposure to TB or to drug-resistant TB. Also, clinicians should determine whether the patient has medical conditions, such as HIV infection or diabetes or use of certain biologic medications, that increase the risk of contracting TB or progressing from LTBI to TB disease (to learn more about TB disease, please see the Active Tuberculosis Disease Investigation Guideline).

- **Physical Examination**
  A physical exam can provide valuable information about the patient's overall condition and other factors that may affect how LTBI is treated, such as HIV infection or other illnesses.

- **Test for TB Infection**
  The Mantoux tuberculin skin test (TST) or the TB blood test (IGRA, QFT, or T-Spot) can be used to test for *M. tuberculosis* infection. Additional tests are required to confirm Latent TB infection.

- **Chest Radiograph**

A posterior-anterior chest radiograph is used to detect chest abnormalities. Lesions may appear anywhere in the lungs and may differ in size, shape, density, and cavitation. Abnormalities may suggest TB disease but can also be evidence of prior infection or trauma (scaring, etc.) in a person who has had a positive reaction to a TST or TB blood test and no symptom of disease. A chest computed tomography (CT) may also be used to detect chest abnormalities but **does not** replace a chest radiograph when evaluating the potential infectiousness of a patient. For patients with suspected or confirmed TB disease, a chest radiograph should always be completed before starting treatment to accurately assess the patient's infectiousness and need for a contact investigation.

Laboratory Criteria for Case Classification:

Laboratory collections are not always required to diagnose LTBI. In a patient with **no abnormalities** on their chest radiograph, or with abnormalities consistent with prior infection or trauma (as determined by the radiologist or ordering provider, **not** patient report) laboratory collections are not required prior to starting treatment.

If abnormalities **are** shown on the chest radiograph or CT, and the radiologist or ordering provider are unable to rule out TB disease, sputum samples should be obtained for smear and culture

- **Diagnostic Microbiology**
- The absence of acid-fast-bacilli (AFB) on a **sputum smear** or other specimen can indicate LTBI rather than TB disease. Acid-fast microscopy is easy and quick, but it **does not** confirm a diagnosis of LTBI, because a mycobacterial **culture** could rule out a diagnosis of LTBI. Therefore, a culture is completed on all initial samples to confirm the diagnosis. (Note: If samples are collected from a patient suspected of LTBI, treatment **cannot** begin until the culture results for all initial samples have been reported as "final".) A negative culture for *M. tuberculosis* confirms the diagnosis of Latent TB Infection. Culture examinations should be completed on all specimens, regardless of AFB smear results. A Polymerase Chain Reaction test (PCR; also known as NAAT, NAA, or DNA Probe, etc.), is a test used to detect *M. tuberculosis* DNA in a sputum sample and should be completed on all positive AFB smears. Laboratories should report positive results on smear, PCR tests, and cultures within **4 hours by telephone or fax** to the ordering provider and to the state or local TB control program, as required by law. **A negative PCR test does not replace negative culture results and a patient should not be started on LTBI treatment based on PCR test results alone.**

Criteria to Distinguish a New Case from Existing Case (For CDC Reporting only):

A case should not be counted twice within the lifetime of the patient, **unless** the patient completed LTBI treatment, and is re-exposed more than 12 months after completion of therapy.

Case Classification:

Confirmed: A case that meets the clinical case definition or is laboratory confirmed

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LABORATORY ANALYSIS

To use the Kansas Health and Environmental (KHEL) Mycobacteriology Laboratory, refer to:

- Kansas Department of Health and Environment (KDHE) Laboratories general page for forms and additional guidance.
- KDHE Microbiology Specimen Submission Guidelines.

EPIDEMIOLOGY

KDHE Tuberculosis Control Program Statistical Information: Contact program at 785-296-5589.

INVESTIGATOR RESPONSIBILITIES

1) Health care facilities, providers, local health departments, and/or infection prevention staff should report **all suspect or confirmed cases of Latent TB Infection** to the State TB Office via phone call (877-427-7317) or fax (785-559-4224) within **24 hours of suspicion or confirmation**.

- Report suspect TB and TB Disease cases to the State TB Office via phone call or fax within 4 hours of suspicion or confirmation

2) When you receive a notification, start a case in KDHE's Epitrax system.

- The following tabs should be filled out completely:
  - Demographics
  - Clinical
  - Investigation

3) Contact the physician, provider, or facility that sent the notification to confirm that Latent TB Infection is suspected or confirmed, the patient has been notified of the results/diagnosis, and obtain the following information and records:

- TB test (TST or IGRA)
- Chest radiograph or imaging reports
- Other test results (CBC, CMP, Liver Function testing, HIV, and/or AFB smears/cultures and/or PCR testing [if applicable])
- Notes from visit including medical history.
- Current medication list
- Treatment regimen recommendation and orders

4) Contact the patient and offer Latent Tuberculosis treatment per the providers recommendation and orders.

- If the reporting provider will not write treatment orders, contact the TB Control Program for further instructions or defer to county policies/procedures for LTBI treatment.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Case Investigation

1) Contact the medical provider who reported or ordered testing of the case to obtain the following information from the patient's medical records.

- Chest radiography results
- TB testing (TST or IGRA) results
- AFB smear, culture, or PCR results (if any)
- Medical records on the case
- Record presence and onset of any symptoms (If symptomatic, patient should be ruled out for active TB disease prior to starting any treatment.)
- Examine the laboratory testing that was done to ensure all testing that could confirm the case has been completed and reported. Obtain, Scan, and attach all records and lab reports to the Epitrax record.

Case Management

- Pretreatment clinical assessment to include weight, vitals, appropriate labs, and medication/treatment teaching
- Weekly DOT for the 12-week (Isoniazid and Rifapentine, 3HP) regimen
- Monthly clinical assessments to include weight, vitals, appropriate labs, and monitoring for adverse effects and adherence for all treatment regimens.
- Document DOT visits and monthly assessments in KDHE's Epitrax System
- Attach 12-week (3HP) regimen treatment completion and DOT log to the patient record in Epitrax.
- 12-Dose Treatment Completion DOT Log & Cover Letter are available on the KHDE TB website under the "Forms" tab.

ADDITIONAL RESOURCES

Questions or Concerns

For questions related to *M. tuberculosis* investigation, treatment, and/or care, please contact

- The Kansas Epidemiology hotline at 1-877-427-7317
- KDHE Tuberculosis Control Program
    - Nurse Consultant: 785-296-0739
    - Health Educator: 785-296-5589

Or consult the following resources:

- Centers for Disease Control and Prevention: https://www.cdc.gov/tb/publications/ltbi/ltbiresources.htm
    - Core Curriculum on TB: https://www.cdc.gov/tb/education/corecurr/index.htm
    - Self-study modules: https://www.cdc.gov/tb/education/ssmodules/default.htm
    - Primary Health Care Provider LTBI Guide' https://www.cdc.gov/tb/publications/ltbi/default.htm
    - MMWR Treatment Guidelines - 2020 https://www.cdc.gov/mmwr/volumes/69/rr/pdfs/rr6901a1-H.pdf
- National Tuberculosis Controllers Association: http://www.tbcontrollers.org/
- American Thoracic Society: https://www.thoracic.org/
- Association for Professional in Infection Control and Epidemiology: https://apic.org/
- Heartland National TB Center: https://www.heartlandntbc.org/