



Active Tuberculosis Disease Investigation Guideline

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09/2021	-	Released. [01/03/2022: Udpated KDHE associated weblinks.]

Active Tuberculosis

Disease Management and Investigative Guidelines

CASE DEFINITION (2021)

Clinical Description for Public Health Surveillance:

Tuberculosis (TB) disease is diagnosed by medical history, physical examination, chest x-ray, and other laboratory tests. TB disease is treated by taking several drugs (Frequently: Rifampin, Isoniazid, Pyrazinamide, Ethambutol and vitamin B6, but others may be prescribed for drug resistance) as recommended by a health care provider.

TB disease should be suspected in persons who have any of the following symptoms:

- Unexplained weight loss
- Loss of appetite
- Night sweats
- Fever
- Fatigue

If TB disease is in the lungs (pulmonary), symptoms may include:

- Coughing for longer than 3 weeks
- Hemoptysis (coughing up blood)
- Chest pain

If TB disease is in other parts of the body (extrapulmonary), symptoms will depend on the area affected.

TB disease can be both pulmonary and extrapulmonary. This type of infection is known as miliary TB and is diagnosed by a medical provider.

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) 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 latent TB infection progressing to TB disease (to learn more about latent TB, please see the [Latent TB Infection \[LTBI\] DIG](#)).
- **Physical Examination**

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

The Mantoux tuberculin skin test (TST) or a TB blood test (IGRA, QFT, or T-Spot) can be used to test for *M. tuberculosis* infection. Additional tests are required to confirm TB disease.
- **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. These abnormalities may suggest TB disease but cannot be used to definitively diagnose TB disease. However, a chest radiograph **may** be used to rule out the possibility of pulmonary TB in a person who has had a positive reaction to a TST or TB blood test and no symptoms 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 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:

- **Diagnostic Microbiology**
The presence of acid-fast-bacilli (AFB) on a **sputum smear** or other specimen can indicate TB disease. Acid-fast microscopy is easy and quick, but it **does not** confirm a diagnosis of TB because some acid-fast-bacilli are not *M. tuberculosis*. Therefore, a **culture** is done on all initial samples to confirm the diagnosis. (*Note: a positive culture is not always necessary to begin or continue treatment for TB.*) A positive culture for *M. tuberculosis* confirms the diagnosis of TB disease. 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 smears, PCR tests, and cultures within **4 hours by telephone or fax** to the primary health care provider and to the state or local TB control program, as required by law.
- **Drug Resistance**
For all patients, the initial *M. tuberculosis* isolate should be tested for drug resistance. It is crucial to identify drug resistance as early as possible to ensure effective treatment. Drug susceptibility testing should be repeated for patients who do not respond adequately to treatment or who have positive culture results despite 3 months of therapy. Susceptibility results from laboratories should be promptly reported to the treating provider and to the state or local TB control program.

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

A case should not be counted twice within any consecutive 12-month period. However, a case occurring in a patient with previously verified TB disease should be reported and counted again if more than 12 months have elapsed since the patient completed therapy. A case should also be reported and counted again if the patient was lost to supervision for greater than 12 months and TB disease can be verified again.

Case Classification:

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

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 TB Disease, TB suspect, and Latent TB Infection** to the State TB Office via phone call (877-427-7317) or fax (785-559-4224) 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 that sent the notification and confirm that TB Disease is suspected and obtain the following information and records:
 - TB test (TST or IGRA)
 - Chest imaging reports
 - Other test results (CBC, CMP, Liver Function testing, HIV, HbA1c, AFB smears/cultures and/or PCR testing)
 - Notes from visit including medical history.
- 4) Contact the patient and make sure they are remaining in isolation until screening and diagnostic test results are returned (longer if tests come back positive).
- 5) Arrange to collect sputum (if not already collected). Three sputum samples should be collected at least eight hours apart with at least two being early morning specimens.
- 6) Start obtaining a list of close contacts, making sure there are no children under the age of 5 years in the home with the patient.
- 7) Contact the state TB Control Program for further instructions.

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 from the patient's medical records.
 - Chest radiography/imaging results
 - TB testing (TST or IGRA) results
 - AFB smear, culture or PCR results (if any)

- Medical records on the case.
- Examine the laboratory testing that was done to ensure all testing that could confirm the case has been ordered or completed and reported. Obtain, scan, and attach all records and lab reports to the Epitrax record.
- Record symptom onset date.

Contact Investigation

- Because of the urgency of finding other infectious persons associated with the index patient, the first interview should be conducted within ≤ 1 business day of reporting for infectious persons and ≤ 3 business days for noninfectious persons (e.g. extrapulmonary TB, smear negative patients etc).
 - The interview should be conducted in person.
 - A second interview is conducted 1–2 weeks later, when the patient has had time to adjust to the disruptions caused by the illness and has become accustomed to the interviewer, which facilitates a two-way exchange (more interviews may be required dependent on information gathered).
 - A visit to the home should occur ≤ 3 business days from initial interview, unless the patient is hospitalized. If the index patient is hospitalized, the home visit should occur ≤ 1 business day of discharge.
 - Determine if there are children under the age of 5 years living or staying in the home (includes daycare/babysitting settings, frequent visits, and permanent residence).
 - Physical conditions at each setting you visit contribute to the likelihood of transmission. Pertinent details include room sizes, ventilation systems, and airflow patterns. These factors should be considered in the context of how often and how long the index patient was in each setting.
 - It is appropriate to physically visit settings the patient has visited during his/her infectious period to assess the above factors.
 - Possible settings include but are not limited to: employment setting, place of worship, friend/family member households, community centers, physician offices/clinics, schools, etc.
- Contacts should be tested with either a TST or an IGRA, with a follow-up TST or IGRA at 8-10 weeks after last exposure.
 - IGRAs are generally preferred to TSTs due to the accuracy of the tests.
 - If the patient is under 5 years old, TSTs are appropriate for contact investigation testing. (*Note: KHEL is able to process IGRA tests on patients under 5 years old if the patient is a close contact of an Active TB Case. Contact the TB Control Program for more information.*)

Isolation, Work and Daycare Restrictions

- The index patient should remain in isolation until **ALL** the following requirements have been met:
 - Patient has completed at least 2 weeks of therapy (14 calendar days or 10 DOT doses whichever is longer).
- **AND**
 - Three AFB specimens collected in the same 7-day period come back smear negative
- **AND**
 - Symptom improvement has been documented (weight gain, less coughing, decreased fevers/night sweats, patient reports feeling better)
- If the Index Patient finds it necessary to go out in public (should only occur for health care appointments), they should wear a surgical mask **not an N95**.
- When visiting with the patient, in person, **the investigator** should wear an N95 mask or appropriate medical respirator as defined by the CDC or OSHA.

Case Management

- Daily (M-F) Direct Observed Therapy (DOT) is required for the patient, unless comorbidities dictate otherwise. Video DOT (VDOT) or Electronic DOT (EDOT) is an acceptable option. Please contact the KDHE TB program prior to starting VDOT/EDOT at your facility.
 - Weekend medication doses should be packaged and provided to the patient for self-administration on days the health department is closed.
- Weekly sputum collection (three samples at least 8 hours apart) while infectious, then monthly (one sample) until the end of treatment.
 - If the patient is unable to produce sputum, notify the ordering provider and clearly document date patient stopped producing sputum in KDHE's EpiTrax System.
- Document DOT visits in KDHE's EpiTrax System under the Encounters tab and attach DOT logs/Medication Administration Records to the patient record in EpiTrax.
 - Paper Medication Administration Records are available on the KDHE TB website under the "[Forms](https://www.kdhe.ks.gov/543/Tuberculosis-Forms)" tab. (<https://www.kdhe.ks.gov/543/Tuberculosis-Forms>)

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/default.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>
 - Morbidity and Mortality Weekly Report (MMWR) Treatment of Tuberculosis: <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5211a1.htm>
 - MMWR Contact Investigations: <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5415a1.htm>
- 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/>