# RECOMMENDATIONS FOR TUBERCULOSIS PREVENTION AND CARE CORRECTIONAL FACILITIES IN NORTH DAKOTA

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# Background

## Purpose

The purpose of this document is to provide recommendations on the prevention and treatment of tuberculosis (TB) infection or tuberculosis disease among residents and staff of North Dakota Correctional Facilities.

## Epidemiology & Transmission of Tuberculosis

TB incidence in the United States has decreased during the past decade, largely because of more intensive TB prevention and control efforts. Nevertheless, TB control remains a public health priority for correctional systems. TB outbreaks continue to occur and a significant proportion of TB cases in the U.S. occur among persons who are over-represented in certain jails or prisons. These populations include racial/ethnic minority populations, persons with human immunodeficiency virus (HIV) infection, and persons born in foreign countries that have high rates of TB.

*Mycobacterium tuberculosis*, the organism that causes TB, is transmitted through airborne respiratory droplets when an individual with active pulmonary TB disease coughs, sneezes, speaks, or sings. Transmission of *M. tuberculosis* depends on the length of time and frequency of the exposure, the degree of contagiousness of the infected person, the environment and airflow in which the exposure occurred, and the intensity of the contact with the TB organism itself. Infection with *M. tuberculosis* usually requires prolonged contact with an infectious person in an enclosed space. However, many persons who become infected never develop TB disease.

The most significant risk factor for tuberculosis infection is country of origin. The general U.S. population has an estimated TB infection rate of only 5-10%; whereas foreign born populations have an average estimated TB infection rate of 32% (rates varying widely throughout the world). Other risk factors for TB infection include injection drug use, being a resident or employee in congregate settings(prisons and jails, long term health care facilities, and homeless shelters), and being a contact of an active TB disease case. On average, 30% of household contacts to infectious TB disease cases screen positive for TB infection.

Approximately 5% of people with TB infection will develop active TB disease during the first year or two after infection. In another 2-5% over the course of their lifetime. Certain medical conditions increase the risk that TB infection will progress to TB disease. HIV infection, injection drug use, history of organ transplant, immunosuppressive therapy, (including steroids and anti-TNF alpha drugs), diabetes mellitus, and chronic renal failure.

## North Dakota Department of Health Authority and Legal Standards

### NDCC 23-07-01. State department of health - Collection of public health information.

This statue gives the North Dakota Department of Health (NDDoH) the authority to develop rules around diseases or conditions that are required to be reported. It also includes who is expected to report. Mandatory reporters include all health care providers and directors of correctional institutions. These disease reports which are held by NDDoH are confidential and are unable to be disclosed or made public, even under subpoena except that the disclosure is to medical personnel to the extent necessary to protect the health or life of any individual.

### NDAC 33-06-01-01. Reportable conditions.

The administrative rules outline which conditions and, in some cases, laboratory-based results that are reportable to NDDoH under the authority granted in NDCC 23-07.

Tuberculosis:

- tuberculosis infection caused by *Mycobacterium tuberculosis* or *Mycobacterium bovis**.
    - Positive results of tests performed by purified protein derivative antigen or by any other diagnostic test approved for the purpose of identifying tuberculosis infection, (i.e. interferon gamma release assay) with corresponding values as available.
    - Reports can be made via the online report card which can be found at www.ndhealth.gov/hiv/reporting.
- Suspected or confirmed cases of tuberculosis disease
    - These cases must be reported within twenty-four hours preferably by a phone call followed by online or mail reporting.

Laboratories that receive specimens for tuberculosis testing shall report all results obtained by an appropriate procedure.

- all smear results for acid-fast bacilli;
- all results of cultures to look for *M. tuberculosis* complex, and;
- all results of rapid methodologies, including nucleic acid amplifications which are performed when *M. tuberculosis* complex is suspected
- Reporting is required even if the resident has already been released or transferred from the facility.

### Resident constitutional right to TB care

The Eighth Amendment of the U.S. Constitution prohibits "cruel and unusual punishment." Over time, the courts interpreted the deprivation of medical services for prisoners, including failure to relieve pain and restore function, as prisoner torture (Paris, 2008).

The U.S. Supreme Court established in 1976 that the U.S. Constitution guarantees residents a right to health care. In the Estelle v. Gamble decision, the Supreme Court defined "deliberate indifference to medical needs" and established three basic rights for residents: 1) the right to access health care; 2) the right to a professional medical opinion; and 3) the right to care that is ordered. When correctional and detention systems fail to provide care for tuberculosis infection or disease, they also fail to meet these legal demands and litigation may follow (Paris, 2008).

# Facility Risk Assessments

The implementation of evidence-based TB prevention and care strategies and interventions in correctional facilities is paramount. The **Tuberculosis Risk Assessment for Correctional Facilities** is a tool designed to:

- assess facilities TB risk based on state, county, and facility epidemiological data
- evaluate prior year activities
- guide the implementation of TB guidelines provided by NDDoH TB Program

Each correctional facility must perform an initial baseline TB risk assessment. Thereafter, the facility must perform annual assessments.

Risk assessment categories are listed as **High Risk (**with potential ongoing transmission), **Medium Risk** or **Minimal Risk**. Screening for TB is based upon each facility's risk for ongoing person to person transmission of TB.

To assess a correctional facility's risk for TB transmission, consider the following facility-based questions:

- What is the facility type (e.g., prison, transitional, regional/city county or short-term detention)?
- Has the facility identified a cluster of persons with TB test conversions or confirmed TB disease suggesting recent ongoing TB transmission? A TB test conversion due to recent transmission in the jail requires the baseline negative test and repeat positive test be done in the facility.
- What is the facility's incidence of TB disease? How does the facility compare to state and national incidence of TB disease?
- Is the percentage of screened residents with previous or newly diagnosed TB infection in the preceding calendar year equal or greater than 10?
- Has a case of infectious TB disease been reported in the last year?
- Does the facility house or employ a substantial number of persons with TB risk factors (e.g., HIV-positive clients)?
- Does the facility house or employ a substantial number of persons who have emigrated from areas of the world with high TB incidence (e.g., Mexico)?
- Does the facility have systems in place for prompt TB screening, respiratory isolation or referral for persons with TB signs and symptoms?

# Person-based Risk Assessments

Screening for TB in correctional facilities involves both ongoing surveillance for active TB disease and detection of TB infection. Early detection and isolation of residents with suspected pulmonary TB is critical to preventing widespread TB transmission. Identification of TB infection provides an opportunity for providing treatment to prevent future development of TB disease.

## TB Symptom Screening

Whenever possible, health-care professionals should perform the initial screening. However, correctional officers in jails (particularly those housing minimal numbers of residents) frequently administer health intake questionnaires. If custody staff members conduct the intake screening, they should receive adequate periodic training in taking a medical history, making necessary observations, and determining the appropriate disposition of residents with signs or symptoms of possible medical problems. Staff conducting medical intake should receive appropriate counseling and education regarding medical confidentiality. Facilitates may use the **Tuberculosis Risk Assessment for Adults** or the **Tuberculosis Risk Assessment for Pediatrics** to perform a person-based risk-assessment. This tool screens individuals for signs and symptoms of TB disease as well as for risk factors associated with TB infection.

For non-English speaking residents, it is critical that TB symptom screening questions be asked via an interpreter (either in-person or via language line).

When performing a person-level screening for signs and symptoms of TB disease and/or risk for TB infection, questions asked should include:

- *Have you ever been treated for tuberculosis (TB) or latent TB infection (LTBI)?*
- *Have you had a cough for more than 2 weeks?*
- *Are you coughing up blood?*
- *Have you recently had unexplained weight loss?*
- *Do you have frequent fevers or night sweats?*
- *Do you have chest pain?*
- *Have you traveled outside the United States?*

In addition, all newly arrived residents should be evaluated for clinical conditions and other factors that increase the risk for infection or the risk for progressing to TB disease, including the following:

- HIV infection
- recent immigration
- recent close contact with a person with TB disease
- injection-drug use, diabetes mellitus
- immunosuppressive therapy
- hematologic malignancy or lymphoma
- chronic renal failure

- medical conditions associated with substantial weight loss
- malnutrition
- history of gastrectomy or jejunoileal bypass

Residents with any of these conditions may require further screening with a TST or IGRA within fourteen (14) days of intake.

Residents who have symptoms suggestive of TB disease should receive a thorough medical evaluation, including a TST or IGRA, a chest radiograph, and, if indicated, sputum examinations within 1 day of intake. Residents should be isolated in an airborne infection isolation (AII) room until evaluation is completed. If the facility does not have an AII room, the resident should be transported to a facility that has one.

Residents who are infected with HIV might be anergic and consequently might have a false-negative TST. QFT-Plus is now optimized with innovative tuberculosis-specific antigens that elicit both CD8 and CD4 T cell responses – enabling a more comprehensive assessment of cell-mediated immune response to TB infection.

Quantiferon, available through the North Dakota Public Health Lab, is a blood test licensed by the FDA to test for latent tuberculosis infection and has been demonstrated to be at least as sensitive as the TST in detecting the presence of TB infection in individuals with active TB disease. It is more specific than the TST, i.e., there are fewer false positive results. The QFT test is not associated with false positive results related to a history of BCG vaccination (a significant advantage over the TST). Furthermore, there is no need for 2-step testing because false negative results due to the —booster phenomenon are not associated with QFT. The CDC has stated that QFT can be used in all circumstances in which the TST is currently used, including contact investigations, evaluation of recent immigrants, and sequential-testing surveillance programs for infection control (e.g., those for health care or correctional workers).

To facilitate screening, the **Tuberculosis Risk Assessment for Adults** or **Tuberculosis Risk Assessment for Pediatrics** should be used.

## Residents in Low/Minimal and Medium TB Risk Facilities

The primary purpose of screening in short-term correctional settings is to detect TB disease. TST or IGRA screening is often not practical to initiate treatment for TB infection because of the high turnover rate and short lengths of stay. The following initial screening steps must be taken:

- Evaluate all residents upon entry for TB history and symptoms.
- Immediately evaluate residents with symptoms to rule out infectious TB disease and house them in an AIIR until evaluated. If facility does not have an AIIR, transfer residents to a facility equipped with an AIIR for evaluation.

- Non-infectious residents may be released from an AIIR if:
    - 1) TB diagnosis is excluded, or
    - 2) they meet the criteria to discontinue isolation before a final diagnosis is made.
- Infectious residents should remain in isolation until treatment renders them noninfectious.

For residents who do not have any symptoms of TB, ensure testing within fourteen (14) days of intake. If a previous test result is available, it is valid for six (6) months unless the resident reports new risk factors since the last assessment.

For residents that are BCG vaccinated, the CDC recommends IGRA testing as BCG may cause a false positive TST reaction.

Residents with any of the following are exempt from receiving a TST or IGRA test:

- Documented history of a positive IGRA result;
- Documented history of previously diagnosed TB disease; or
- Documented history of severe reaction to a TST (recommend performing an IGRA).

Residents with documented history of previous, adequate treatment for TB infection or disease should not be tested but screened for signs and symptoms of active disease.

## Residents in High Risk Facilities

This classification should be temporary and warrants immediate investigation and corrective action. Contact the NDDoH TB Program for guidance and recommendations.

- Repeat TB screenings every 8-10 weeks. Follow with a new risk assessment until:
    1) no cases of infectious TB or TB test conversions are identified, and
    2) lapses in infection control have been corrected.
- Reclassify the facility as medium risk for one year after ongoing transmission has ceased.

## Persons in Holding or Booking Facilities

City, county, and other law enforcement authorities frequently have facilities that hold arrestees and detainees for short periods of time, ranging from hours to multiple days. TB symptom screening is recommended for all persons at the time of entry into these facilities. Any detainee who has symptoms suggestive of TB should be immediately isolated and transferred to a facility or hospital in which the detainee can be placed in an AII room and evaluated promptly for TB disease.

## Employee and Volunteer Screening in All Facilities

All employees and volunteers who share the same air with residents should have TB risk assessments performed at least annually.

- Provide TB screening and testing, or request proof of TB clearance prior to employment.
- Provide TB screenings at least annually for all employees without documented history of a positive TB test.
- Conduct immediate TB screening and testing for persons with TB signs and symptoms.

To improve the accuracy of baseline results, a two-step TST or a single-step IGRA should be used for initial employee screening without documented evidence of a TST or an IGRA in the past 12 months. Employment or service is not contingent upon test results. If medical evaluation and chest x-ray is suggestive of active TB, place the employee or volunteer on sick leave until a diagnosis of infectious TB has been excluded. The employee or volunteer must provide a written release from a provider to return to work.

## Refusal of TB Testing

All facilities must have a policy and defined procedures for managing informed consent and refusal of TB screening.

General recommendations when a resident refuses TB testing:

- Provide education on TB screening risks and benefits. Make a reasonable effort to encourage voluntary acceptance of screening.
- Offer to screen with an IGRA if a resident refuses TST, or vice versa.
- Symptom screening with a chest x-ray, and if indicated, laboratory examination of sputum samples or other body tissues can also be used for TB disease screening.
- Separate residents who refuse TB testing from the general population for observation; provide education and offer screening daily for fourteen (14) to thirty (30) days. Separation should only be for medical reasons and not for punitive purposes.

## Interpreting TB Tests

### IGRA Test

TB blood tests are also called interferon-gamma release assays or IGRAs. Two TB blood tests are approved by the U.S. Food and Drug Administration (FDA) and are available in the United States: the QuantiFERON®–TB Gold In-Tube test (QFT-GIT) and the T-SPOT®.TB test (T-Spot).

IGRAs measure a person's immune reactivity to *M. tuberculosis*. White blood cells from most persons that have been infected with *M. tuberculosis* will release interferon-gamma (IFN-g) when

mixed with antigens (substances that can produce an immune response) derived from *M. tuberculosis*.

IGRA interpretations are based on the amount of IFN-g that is released or on the number of cells that release IFN-g. Both the standard qualitative test interpretation (positive, negative, or indeterminate) and the quantitative assay measurements (Nil, TB, and Mitogen concentrations or spot counts).

As with the tuberculin skin tests (TSTs), IGRAs should be used as an aid in diagnosing infection with *M. tuberculosis*. A positive test result suggests that *M. tuberculosis* infection is likely; a negative result suggests that infection is unlikely. An indeterminate result indicates an uncertain likelihood of *M. tuberculosis* infection. A borderline test result (T-Spot only) also indicates an uncertain likelihood of *M. tuberculosis* infection.

IGRA's are preferred for testing:

- Persons who have received BCG (either as a vaccine or for cancer therapy
- Persons from groups that historically have poor rates of return for TST reading

If a resident has a negative test for TB but has symptoms of TB, they should still be evaluated for TB disease.

## TST Test

The TST is performed by injecting 0.1 ml of tuberculin purified protein derivative (PPD) into the inner surface of the forearm. The injection should be made with a tuberculin syringe, with the needle bevel facing upward. The TST is an intradermal injection. When placed correctly, the injection should produce a pale elevation of the skin (a wheal) 6 to 10 mm in diameter. The skin test reaction should be read between 48 and 72 hours after administration.

The skin test reaction should be measured in millimeters (mm) of the induration (palpable, raised, hardened area or swelling). The reader should not measure erythema (redness). The diameter of the indurated area should be measured across the forearm (perpendicular to the long axis). Document test result in mm, not positive or negative.

Vaccinations with live viruses may interfere with TST reactions (may cause a false negative test value). Perform the TST either on the same day as vaccination with live-virus or wait 4-6 weeks after the administration of the live-virus vaccine. TST should be placed one month after a smallpox vaccination.

A baseline screening TST result of ≥10 mm induration is considered positive for the majority of correctional facility staff and residents, and these persons should be referred for medical and diagnostic evaluation. However, for correctional facility staff and residents who have had a known exposure in a correctional facility (i.e., close contact with a resident or staff member with infectious TB disease) after having a previous (baseline) TST value of 0 mm, TST results of ≥5 mm should be considered positive and interpreted as a new infection.

Correctional facility staff and residents with a screening baseline TST result of ≥1 mm, but <10 mm, who are subsequently exposed to TB disease, should be considered newly infected if they have TST values increase by ≥10 mm on retest. For example, a baseline TST result with 8 mm induration and a repeat TST result 1 year later with 18 mm induration would indicate a new infection. However, a repeat TST result with 12 mm induration would not indicate a new infection.

When decisions are made for the diagnosis and treatment of LTBI and choosing the cut-off value for a positive reaction, certain risk factors (e.g., immunocompromising conditions and known contact with a TB patient) should be assessed. Correctional facility staff and residents who have TST indurations of 5 - 9 mm should be advised that their results might be an indication for treatment under certain conditions.

## Periodic Screening

Long-term residents and all employees who have a negative TST or IGRA result should have a follow-up risk assessment at least annually. Persons who have a history of a positive test result should be screened for symptoms of TB disease. Annual chest radiographs are unnecessary for the follow-up evaluation of infected persons. Test results should be recorded in medical records and in a retrievable aggregate database of all TST or IGRA results.

Correctional facilities can use multiple strategies to ensure annual screening of long-term residents for newly acquired TB infection. Certain institutions schedule annual screening on the resident's date of birth or on the anniversary of the resident's most recent test. Other institutions and systems suspend resident movement and screen the entire population on the same day every year. Methods of screening a subset of the resident population (e.g., on a monthly basis) are beneficial because they provide an ongoing assessment of *M. tuberculosis* transmission within the facility.

Results from TST or IGRA testing should be analyzed periodically to estimate the risk for acquiring new infection in a correctional facility; however, this analysis should be completed by using only the test results of facility employees and residents who have remained in the facility continually during the interval between testing. The conversion rate equals the number of

employees or residents whose test results have converted from negative to positive (i.e., the numerator) during a specific interval divided by the total number of previously negative employees or residents who were tested during the same interval (i.e., the denominator). In certain facilities, conducting an analysis of test results for specific areas or groups within the facility might be appropriate.

More frequent screening is needed when a conversion rate is substantially higher than previous rates or when other evidence of ongoing transmission is detected. A cluster (i.e., either two or more patients with TB disease that are linked by epidemiologic or genotyping data or two or more TST or IGRA conversions occurring in the correctional facility among residents who are epidemiologically linked) or other evidence of person-to-person transmission also warrants additional epidemiologic investigation and possibly a revision of the facility's TB prevention and control protocol.

Facilities in which the risk for infection with *M. tuberculosis* is minimal might not need to maintain a periodic screening program. However, requiring baseline TST or IGRA testing of employees would enable medical staff to distinguish between a TST or IGRA conversion and a positive TST or IGRA result caused by a previous exposure to *M. tuberculosis*. A decision to discontinue periodic employee screening should be made in consultation with the local or state health department.

# TB Treatment

## Treatment of TB Disease

Correctional facilities housing residents with TB disease should provide medical treatment in coordination with NDDoH TB Program. TB treatment is complicated and lasts for a long time. Proper TB case management leads to treatment completion and prevents serious problems, including development of drug resistant TB and transmission. The following actions are essential for a successful treatment outcome:

- Notify NDDoH TB Program within one (1) working day when a resident has suspected or confirmed TB disease and begin clinical case management consultation.
- Transfer individuals who need advanced health care beyond facility resources to an appropriate facility where care is available.
- Educate residents about reasons for taking medications, name of medications, side effects, and importance of treatment adherence.
- Contact NDDoH TB Program if TB expert consultation is required (e.g., drug-resistant TB).
- Start medication for TB disease, regardless of incarceration length.
- Directly observe the resident swallowing TB medication to prevent relapse and drug resistance.
- Conduct face-to-face clinical monitoring for adverse reactions to medications (i.e., symptoms of liver failure).

## Treatment of TB Infection

Screening programs at correctional facilities are key to identifying persons with TB infection who are at high risk for progressing to TB disease. Infected persons incarcerated long term without preventive treatment may progress to active TB disease and pose a risk to themselves and others.

Treatment for TB infection is generally started on residents who will be incarcerated for the duration of care or residents likely to complete treatment under supervision when released from a facility. Residents with the following risk factors should be started on treatment regardless of their expected duration of incarceration:

1) HIV co-infected or other immunocompromised condition
2) close contact with an active TB case
3) TB test conversion within a two-year period

If the attending physician prescribes preventive treatment and residents consents to care, follow these recommendations to ensure a successful treatment outcome:

- Screen residents for TB disease before starting TB infection treatment.

- Start sentenced residents on TB infection medication. Coordinate continuity of care with receiving facility for residents transferred during treatment.
- Follow attending physician's orders for TB infection treatment. Consult with LPHU or TB program if TB expert guidance is needed or facility medical orders are not available.
- Directly observe residents swallowing TB medication. Record in medication records.
- Monitor medication records at least weekly to ensure residents take all prescribed medications.
- Prior to starting medication, educate residents about reasons for taking medications, medication name(s), time to administer, side effects, and importance of adherence.
- Conduct clinical monitoring of side effects. A health professional should evaluate all residents taking TB infection treatment at least monthly.
- Direct healthcare workers to stop medications and consult with LPHU or TB program if resident has any serious adverse reactions (such as nausea, vomiting, bleeding, etc.).

Residents failing to complete treatment for TB infection on two or more occasions should be evaluated to determine if additional efforts to treat are clinically prudent. Some considerations to reinitiate treatment include:

1. Risk factors for TB disease
2. Previous cumulative doses of administered treatment
3. Anticipated treatment adherence

The treatment of TB infection should never be initiated until active TB disease has been eliminated as a potential diagnosis with a posterior-anterior CXR and documented negative assessment for signs and symptoms of TB. A CXR is —good (for the purpose of ruling out TB prior to starting treatment of LTBI) for 3–6 months in HIV seronegative persons and 1 month in HIV-positive persons.

If the resident is pregnant, a CXR should be done immediately utilizing lead shielding, even during the first trimester for pregnant women who are:

- Presenting with symptoms suggestive of TB disease.
- HIV-positive (TB test positive or negative) and had close contact to a TB case.
- TB test positive and are a close contact to a smear positive or cavitary case.
- A CXR should be performed for lower risk TB test positive pregnant women after the first trimester, utilizing lead shielding.

Liver transaminases, i.e., ALT (SGPT) or AST (SGOT) and other laboratory tests, should be obtained as clinically indicated. Although baseline liver transaminases are not routinely recommended prior to initiating LTBI treatment in the general population, screening is recommended for residents because of the high-incidence of substance abuse and associated

liver disease among incarcerated populations. If liver transaminases are elevated, liver function tests (e.g., bilirubin) should also be assessed.

HIV counseling and testing is strongly recommended for all TB test positive persons (if not done previously) since HIV co-infection significantly increases the risk of developing active TB.

Sputum evaluation is not routinely indicated for persons being considered for LTBI treatment. However, for residents with CXRs suggestive of old healed TB, sputum's (if producible) should be obtained for AFB smear and culture to screen for active TB disease. Obtain 3 consecutive sputum samples at least 8 hours apart, including one early morning specimen. Residents with HIV infection, who have respiratory symptoms, unexplained fever or weight loss, should also have sputum's submitted for bacteriologic cultures, since active TB disease in immunocompromised hosts is often difficult to diagnose.

If sputum smears and cultures are negative and the resident's symptoms or radiographic findings cannot otherwise be clinically explained, further diagnostic evaluations (e.g., bronchoscopy) for active TB disease should be considered. During the diagnostic evaluation, empiric treatment for active TB disease can be considered on a case by case basis depending on the resident's symptoms and radiographic findings. Single drug treatment of LTBI should never be instituted while an evaluation for active TB disease is being pursued.

## Regimens for the Treatment of TB Infection

Three treatment regimens for latent TB infection have been recommended by the CDC. The anti-tuberculosis medications used in these regimens differ in their dosages, potential toxicities and monitoring requirements. Ingestion of all doses of medication for treatment of latent TB infection should be directly observed via pill line.

The North Dakota TB Program recommends treatment with rifampin for 4 months unless medical contradictions exist.  For more information and to initiate treatment for TB infection, see the TB Infection Medications Request Form.

## Indications for Treatment of TB Infection

Treatment of TB infection should be considered for all TST or IGRA positive residents regardless of age, when no medical contraindications to treatment exist, and previous adequate treatment has not been provided/documented.

People who have any of the following should be prioritized for treatment of TB infection as the development of TB disease is more likely due to co-morbidities and risk factors that increase the risk of conversion to TB disease.

- HIV co-infection.
    - HIV infection is the most significant risk factor for the development of active TB; therefore, co-infected TB test positive residents are a very high priority for effectively treating TB infection

- Other immunosuppressive conditions or therapy:
    - Residents on immunosuppressive therapy
    - History of organ transplantation with immunosuppression
    - On chronic steroid therapy
    - On anti-TNF alpha therapy
- People with recent documented negative TST or IGRA tests.
- Other high-risk medical conditions/risk factors:
    - Abnormal CXR consistent with old healed TB
    - History of injection drug use
    - Hematologic or reticuloendothelial neoplasms
    - Chronic renal failure
    - Diabetes mellitus
    - Gastrectomy and other specific conditions resulting in nutritional deficiencies
    - Head and neck malignancies
    - Silicosis

## Grade 3 or 4 Facilities

Residents in facilities where residents are detained for short periods of time should not be routinely starting residents on LTBI treatment. Special cases may be made if the resident is known to have high priority indications such as HIV co-infection, other immunocompromised condition, close contact with an active TB case, or recent convertor status.

# Treatment Coordination Upon Release

## Coordinated Release Planning

Regardless of size and ownership, all correctional facilities must assure continuity of care for residents receiving TB treatment. Coordinating TB services when residents are transferred or released to another facility is critical. It prevents interruptions in treatment and minimizes risk to public health.

The housing facility, destination facility, NDDoH TB Program, and the resident must initiate the continuity of care plan as soon as TB disease or TB infection is suspected. The classifications unit should notify health services staff when a resident is scheduled for release or transfer. However, residents may be released any time due to an unexpected or immediate order of the court. When this occurs, the notification should be provided immediately after the resident's release. Advising a resident to go to the local health department upon release is not a continuity of care plan. Prior to release:

- Contact the LPHU before the person leaves the facility.
- Review the program eligibility criteria to ensure referral is sent to appropriate program.
- Complete the referral carefully and provide accurate information; i.e. transfer of medication, prescription, medical records.

## Interstate and Intrastate Transfers

An inter-jurisdictional referral system is supported by the National Tuberculosis Controllers Association (NTCA) and NDDoH TB Program for patients who move across state lines and locally in North Dakota. To ensure the completion of treatment, any resident who is currently receiving treatment for either TB infection or TB disease must have paperwork sent to the NDDoH TB program. NDDoH will coordinate the transfer of the care between states for both TB infection and TB disease instances.

# Infection Control

Effective infection control measures in correctional facilities reduce or eliminate the risk of TB transmission. All facilities, including low risk TB facilities, should assign a person with experience in infection control and occupational health to be responsible for TB prevention and control. This person must have the authority to develop, implement, enforce and evaluate TB control policies. A TB risk assessment is the first step of a TB control plan. It determines the types of administrative, environmental, and respiratory-protection controls needed and should be repeated annually in collaboration with a NDDoH TB Program.

Most TB outbreaks reported in correctional facilities involve an infectious person who remained undetected for a prolonged period of time. Immediate isolation of infectious patients can interrupt TB transmission in correctional facilities. Residents must be placed in an AIIR or safely transferred to other institutions, facility or hospital with a functional AIIR, when the following conditions exist:

1) Signs and symptoms of TB disease are present
2) A resident has documented TB disease and incomplete treatment
3) A qualified provider has not ruled out infectious TB

Residents or employees with suspected or confirmed TB disease who are not on TB treatment should be considered infectious if characteristics include:

- Prolonged cough for 3 weeks or longer
- Chest pain
- Hemoptysis (bloody sputum)
- Cavitation on chest radiograph
- Positive acid-fast bacilli (AFB) sputum smear result
- Respiratory tract disease with involvement of the lung or airways, including larynx
- Undergoing cough-inducing or aerosol-generating procedures (e.g., sputum induction, bronchoscopy, airway suction)

If residents with one or more of the characteristics above are on standard multidrug therapy with documented clinical improvement, usually with smear conversion over several weeks, risk of infectiousness is reduced.

The following guidance is central to effective isolation measures.

- Do not isolate or segregate people with confirmed or suspected TB without proper health monitoring. The general medical and mental health of isolated residents should be monitored daily given their TB medications. They must also be given time to make

their health needs known, including discussing adverse side effects from their TB regimen.
- Do not use "lock-down" or single solitary confinement rooms to isolate persons with TB signs and symptoms. TB can be transmitted into adjacent corridors and rooms unless adequate ventilation system maintains negative pressure and appropriate room exhaust.
- Post appropriate respiratory precautions outside AIIRs.
- Medical and security staff should use particulate N-95 respirators when caring for infectious TB patients.

## Discontinuation of isolation

A resident with suspected or confirmed TB disease should remain in an AIIR until all the following have occurred:

- The patient has three (3) consecutive negative AFB sputum smear results obtained eight (8) to twenty-four (24) hours apart, with at least one (1) being an early morning specimen
- The patient has demonstrated clinical improvement as a result of directly observed therapy (DOT) TB treatment for a minimum of two (2) weeks; and
- A knowledgeable and experienced TB physician has determined that the patient is noninfectious.
- A longer isolation period must be considered for patients with multidrug-resistant TB (MDR TB) due to the possibility of treatment failure or relapse which may prolong infectiousness.

## Transporting Residents with Infectious TB Disease

Measures must be taken to prevent transmission when transporting a person with suspected or confirmed infectious TB disease. Transporting in an ambulance is preferred whenever possible. Provide instructions and ensure that only mask fitted personnel care for and transport infectious residents; N-95 must be worn in all enclosed areas.

Additional steps to ensure proper infection control include:

- Provide enough surgical masks for the resident to wear over the mouth or nose to prevent TB particles from the respiratory tract from being released into the air. The resident's masks should be changed when they become moist or torn.
    - Note: Residents should not wear N-95 respirators. A respirator has the opposite function of a surgical mask.
- Set ventilation system to non-recirculating mode. This maximizes outdoor air and facilitates TB particles dilution.

- Use rear exhaust, if available. Airflow should go from the vehicle front to rear exhaust fan. Open as many windows as possible to reduce exposure risk, if a vehicle with a HEPA filter is not available.
- Transport additional passengers and staff members in a separate vehicle to reduce exposure risk.
- Leave vehicle unoccupied with windows open for at least one (1) hour after end of journey. Post a sign on vehicle indicating when it can be used again.

## Airborne Infection Isolation Rooms

A properly designed and operating AIIR can be an effective infection control measure. However, a badly designed or incorrectly operating AIIR does not contain infectious particles or effectively reduce their concentration in the room.

Consequently, health care workers and other patients are placed at risk for TB. Correctional and detention facilities with an AIIR must develop and implement monitoring and maintenance procedures. When an AIIR does not function according to code, the appropriate staff must be notified to take appropriate corrective action.

- AIIRs must provide negative room pressure (such that air flows under the door gap into the room). A properly functioning must:
  - Have an air flow rate of 6-12 air changes/hour (ACH)
  - 6 ACH for existing structures
  - 12 ACH for new construction or renovation.
  - Have direct exhaust of air from room to outside the building or recirculation of air through a HEPA filter before returning to circulation control tests and measurements

## Respiratory protection

Staff must wear respiratory protection to:

1) enter rooms housing individuals with suspected or confirmed TB disease; or
2) transport an individual with suspected or confirmed TB disease.

In addition, visitors to residents with TB disease (e.g., law enforcement officials, social workers, ministers) should be offered respirators to wear while in AIIR and instructed on proper use.

The minimum respiratory protection is a filtering face-piece respirator and must be selected from those approved by CDC/National Institute for Occupational Safety and Health (NIOSH) under Title 42 CFR, Part 84. Decisions regarding which respirator is appropriate for a situation and setting should be based on the TB risk assessment.

For correctional facilities, a CDC/NIOSH-approved N95 air-purifying respirator will provide adequate respiratory protection in the majority of situations that require the use of respirators .

Respirators must fit different face sizes and features properly. Staff must also understand the difference between respirators and surgical masks. When respirators are used, a respiratory protection program including education, initial fit testing, and annual fit testing should be part of a correctional facility's TB control program. The OSHA standard on respirators fit testing procedures, 29 CFR 1910.134, is applicable and should be followed.