Saskatchewan Health Authority	**TB Prevention and Control Saskatchewan Clinical Policies and Procedures** Number: 60-001 Title: **Airborne Precautions and Isolation**
Authorization [X] TB Prevention and Control SK Leadership	Source: Manager, TB Prevention and Control SK Cross Index: Date Approved: June 11, 2018 Date Revised: Date Effective: June 18, 2018 Date Reaffirmed: Scope: TB Prevention and Control SK and Partners

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1. Overview and Purpose

The most important priorities for effective management of individuals with active tuberculosis (TB) are early diagnosis, followed by prompt, effective treatment. The appropriate application of airborne precautions and isolation is also an essential component in preventing transmission, which varies depending on the type of setting and infectiousness of the person with active TB. Consequently, the policy for discontinuation of airborne precautions and isolation varies among settings and differs depending on the type of TB the individual has.

In Saskatchewan, the vast majority of people diagnosed with infectious TB are isolated in their home during the infectious period rather than undergoing admission to a facility with an airborne infection isolation room. Home isolation is preferred for client-centred care. Although isolation and treatment of TB is necessary to prevent transmission, all efforts should be made to support individuals' voluntary adherence.

The purpose of this policy and procedure is to:

1. Prevent and/or reduce transmission of TB through the use of infection prevention and control measures,
2. Describe the indications for airborne precautions and isolation,
3. Define the conditions for home isolation and travel by public transportation, and
4. Outline criteria for discontinuation of airborne precautions and isolation.

2. Definitions

For the purpose of this document, unless otherwise stated, the term isolation *refers to both isolation in the home and isolation in an airborne infection isolation room.*

Active TB means active clinical disease that is usually symptomatic and for which microbiologic tests are usually positive and/or radiologic tests are usually abnormal.

Adherence means the client and health-care provider's ability to follow disease management recommendations appropriately. The term is used interchangeably with compliance. The terms "adherence" and "non-adherence" may only be used when the client and provider have agreed to a plan of care.

Adult-type pulmonary TB means pulmonary TB that presents with cavitation on chest x-ray and/or smear-positive sputum and/or persistent productive cough.

Aerosol-generating medical procedure (AGMP) means medical procedures in which aerosols containing the TB bacteria may be generated, subsequently increasing the risk of TB transmission. These procedures include: sputum induction; bronchoscopy; autopsy; intubation and related procedures such as manual ventilation and open endotracheal suctioning; cardiopulmonary resuscitation; non-invasive positive pressure ventilation; aerosol treatments that induce coughing; and manipulation and/or irrigation of tissue infected with TB.

AFB means acid-fast bacteria (bacilli).

Air changes per hour (ACH) means the number of air changes per hour in a room, one air change being a volume of air equal to that of the room (height x width x length). This is used to estimate how long it takes for airborne contaminants to be removed from a room.

Airborne infection isolation room (AIIR) means a single-occupant room used to isolate persons with a suspected or confirmed airborne infectious disease such as respiratory TB. The AIIR should provide negative pressure in the room so as to prevent air flow out of the room into adjacent areas thus containing airborne particles within the room. Air should be exhausted directly from the room to the outside of the building. Formerly called negative pressure isolation room.

Airborne precautions means precautions used in addition to routine practices for individuals known or suspected to have an airborne infection such as respiratory TB. Airborne precautions include administrative, environmental and personal protection controls utilized to prevent the transmission of airborne infections.

Enabler means a practical item given to a client to facilitate adherence to treatment, isolation, clinic appointments or other aspects of treatment.

Extrapulmonary TB means TB that is outside the lungs and respiratory tract including tuberculous pleurisy and TB of the intrathoracic lymph nodes, mediastinum, nasopharynx, nose (septum) or any nasal sinus and all non-respiratory sites. Often used interchangeably with non-respiratory TB but the definitions vary slightly.

High-efficiency particulate air (HEPA) filter unit means a filter unit capable of removing airborne particles from the air and providing a source of clean air. Units may be portable or stationary and may be referred to as an air scrubber.

Home isolation means activities and precautions taken to prevent the transmission of TB when a person with infectious TB is not admitted to a facility with an AIIR during the infectious period. The individual voluntarily isolates themselves within the home environment.

Incentive means a gift given to clients to encourage or acknowledge their adherence to treatment and/or isolation.

Infectious period means the timeframe in which a person with infectious TB can potentially transmit the bacteria to others.

Infectious TB means active TB, usually respiratory, which can be transmitted to others by virtue of the production of aerosols containing the TB bacteria.

Latent TB infection (LTBI) means the presence of latent (sleeping) infection with *Mycobacterium tuberculosis*. Individuals with LTBI have no evidence of clinically active disease. They are asymptomatic, have negative microbiologic tests, and have no radiologic changes that suggest active TB. They may have fibronodular change or granulomas suggesting post-primary LTBI. Individuals with LTBI are not infectious.

Mask means a disposable device, covering the nose and mouth, worn to prevent droplets from an infected source from contaminating the skin and mucous membranes of the nose and mouth of the wearer, or to trap droplets expelled by the wearer, depending on the intended use. Procedure or surgical masks are worn by persons with infectious TB, when outside isolation, in order to trap airborne particles exhaled or expelled during coughing or sneezing. Masks do not provide sufficient respiratory protection for those working with individuals with airborne infections such as infectious TB.

Most responsible physician (MRP) means the physician who coordinates care of the client while in a facility such as acute care, long-term care or a correctional facility.

N95 respirator means a personal protective device, covering the nose and mouth, worn to reduce the risk of inhaling airborne particles including the TB bacteria. The N95 respirator filters 95% of airborne particles but is not resistant to oil.

Non-respiratory TB means TB at sites not part of the respiratory system. Often used interchangeably with extrapulmonary TB but the definitions vary slightly.

Partner means stakeholder groups, individuals and/or agencies that collaborate with TB Prevention and Control Saskatchewan in the delivery of services and/or maintain an interest in the prevention, treatment and control of TB. Partners manage their own programs and directly employ their own staff. Examples include, but are not limited to, the Athabasca Health Authority, First Nations health authorities, the First Nations and Inuit Health Branch, as well as other programs or departments within the Saskatchewan Health Authority.

PCR means polymerase chain reaction; a method of nucleic acid amplification. During nucleic acid amplification tests, genetic material is amplified and then evaluated for the presence of DNA. The Xpert® MTB/RIF assay is a nucleic acid amplification test that simultaneously detects *Mycobacterium tuberculosis* complex and rifampin resistance. The assay is available within laboratories at the Regina General Hospital, Royal University Hospital and Stony Rapids Hospital.

Pediatric means persons less than 15 years of age.

Pulmonary TB means TB of the lungs and conducting airways (includes tuberculous fibrosis of the lung, tuberculous bronchiectasis, tuberculous pneumonia and tuberculous pneumothorax).

Respiratory TB means pulmonary TB, tuberculous pleurisy (nonprimary) and tuberculosis of the intrathoracic lymph nodes, mediastinum, nasopharynx, nose (septum) and any nasal sinus.

Smear means a laboratory technique for preparing a specimen so bacteria can be observed under a microscope. AFB smears for TB are processed at the Roy Romanow Provincial Laboratory and either reported as direct fluorescent stain negative or, if positive, graded from 1+ up to 4+.

TB Physician means the TB Prevention and Control Saskatchewan physician responsible for directing the care and treatment of individuals admitted to the TB Prevention and Control Saskatchewan service.

Xpert® MTB/RIF assay means a nucleic acid amplification test performed on the GeneXpert® Instrumentation System. See PCR for additional information.

3. Indications for Airborne Precautions and Isolation

Note: When airborne precautions and isolation is indicated for a client within a facility that has an Infection Prevention and Control program, such as acute care, the MRP and/or TB physician must ensure the program is notified of the need for precautions and isolation.

1. **Suspected or confirmed respiratory TB in persons 10 years of age or older**

   Airborne precautions and isolation required regardless of smear status.

2. **Suspected or confirmed respiratory TB in persons less than 10 years of age**

   Airborne precautions and isolation required if:

   - The child has signs and symptoms of adult-type pulmonary TB, **or**

- The child has extensive pulmonary or laryngeal involvement, **or**
- The child is undergoing a cough-inducing or aerosol-generating medical procedure, **or**
- The child is admitted to acute care and accompanying adults are symptomatic for active TB.

Note: Consultation with TB Prevention and Control Saskatchewan (TBPC SK) is recommended when active TB is suspected and it remains unclear whether precautions are necessary.

Note: In general, children less than 10 years of age are not considered infectious and additional precautions are not necessary. Young children normally have a low bacterial load and either do not have a cough or have insufficient force to aerosolize infectious droplets if coughing.

Active TB in young children usually indicates recent transmission and is a reflection of recent or current active TB within the child's environment. The source of infection for most children is commonly an adult or adolescent in their close environment with pulmonary or laryngeal TB such as a parent, sibling or other caregiver. Consideration for precautions on pediatric units should therefore include accompanying adults and adolescents as they may have potentially infectious TB previously unrecognized. These adults and adolescents should be one of the primary focuses for infection control as they may be a source of transmission. Accompanying and visiting adults and adolescents should be screened for symptoms of active TB and, if symptomatic, should wear a mask during visits when outside the airborne infection isolation room until active TB has been ruled out.

3. Suspected or confirmed extrapulmonary TB

Airborne precautions and isolation **required** if:

- Concurrent respiratory TB is suspected or confirmed, or
- The person has an open wound or draining lesion that is infected with TB and the infected tissue will be irrigated or manipulated; for example, during wound care or surgical procedures. Once the site is closed, either surgically or with a dressing, airborne precautions and isolation may be discontinued once the room has remained closed for a period of time in order to clear the air of infectious airborne particles. Refer to Appendix A for information on room closures.

Airborne precautions and isolation **not required**:

- For persons with extrapulmonary TB that do not have an open wound or draining lesion, provided respiratory TB has been ruled out.
- For persons with a closed wound with drain in-situ. Care should be taken when emptying the drain so as not to aerosolize the drainage.

Note: People with extrapulmonary TB are usually noninfectious unless they have concurrent respiratory TB or an infected open abscess or lesion that is being manipulated or irrigated. For this reason, people with extrapulmonary TB usually do not require airborne precautions as aerosolization of infectious particles is rare. Aerosolization of infectious particles can occur when infected tissue is irrigated or manipulated or when the person has concurrent respiratory TB. Every person presumed to have extrapulmonary TB must be assessed for respiratory TB as concurrent respiratory TB can occur in 10 to 50 percent of those with extrapulmonary TB.

Assessment should include history, physical examination and chest x-ray. Sputum should be collected when respiratory TB is suspected and the client is able to produce sputum.

4. Discontinuation of Airborne Precautions and Isolation in Acute Care Facilities

Note: *At the discretion of the TB physician, criteria for discontinuation of airborne precautions and isolation among persons with cavitation on chest x-ray or known/suspected drug resistance may vary from what follows. Drug susceptibility tests or additional tests may be required prior to discontinuing precautions and isolation.*

1. Suspected Respiratory TB

Airborne precautions and isolation may be discontinued upon TB physician, MRP or designate order if the following criteria are met:

1. PCR (Xpert® MTB/RIF assay) negative, **or**
2. Three consecutive AFB-negative smears if PCR not available.

Note: At the discretion of the TB physician or MRP, airborne precautions and isolation should remain in effect when TB is still strongly suspected, no other diagnosis has been made and the PCR and/or smears are negative. In this case, airborne precautions and isolation may be discontinued according to criteria for AFB smear-negative, culture-positive respiratory TB.

The Xpert® MTB/RIF assay is more sensitive than acid-fast smear microscopy and may be able to detect Mycobacterium tuberculosis complex in AFB smear-negative sputum samples. A negative result is highly predictive of the absence of Mycobacterium tuberculosis complex on AFB sputum smear when pulmonary TB is suspected. A negative Xpert® MTB/RIF assay and positive AFB smear generally reflects the presence of a non-tuberculous mycobacterium and airborne precautions are not required unless another airborne infectious illness is suspected.

People with HIV infection and pulmonary TB generally have lower bacterial loads of TB in their sputum specimens compared with HIV-uninfected persons. As a result, their sputum specimens are often AFB smear-negative. The sensitivity of the Xpert® MTB/RIF assay may therefore be lower for those with HIV infection.

Interpretation of the Xpert® MTB/RIF assay result should be made in the context of the clinical and radiographic presentation and the physician's suspicion of infectious TB. The decision to discontinue precautions and isolation based on a negative Xpert® MTB/RIF assay result should consider the clinical presentation and the risk of possible transmission from an infectious person to others.

2. Confirmed AFB Smear-Negative, Culture-Positive Respiratory TB

Airborne precautions and isolation may be discontinued upon TB physician order if the following criteria are met:

1. Five consecutive daily doses of drug therapy taken and tolerated (i.e., the person did not experience side effects such as nausea, vomiting, hypersensitivity, etc.), **and**
2. Clinical improvement as assessed by the TB physician, MRP or designate.

Note: Five doses must be taken on consecutive days. If doses are missed in the first five days of scheduled drug therapy, continue airborne precautions and isolation until five consecutive doses are taken and tolerated. Repeat sputum collection following the five doses is not required.

3. Confirmed AFB Smear-Positive Respiratory TB

Airborne precautions and isolation may be discontinued upon TB physician order if the following criteria are met:

1. Two weeks (14 doses) of drug therapy, **and**
2. Clinical improvement as assessed by the TB physician, MRP or designate, **and**
3. Three consecutive AFB-negative smears following two weeks (14 doses) of drug therapy;

OR

1. Three weeks (21 doses) of drug therapy, **and**
2. Clinical improvement as assessed by the TB physician, MRP or designate.

Note: Sputum induction may be considered for those in whom clinical improvement is not evident or remains unclear; bronchoscopy is not appropriate for this purpose.

4. Suspected Extrapulmonary TB

Airborne precautions and isolation may be discontinued upon TB physician, MRP or designate order if the following criteria are met:

1. The chest x-ray has been reviewed and respiratory TB has been ruled out, **and**
2. Tissue suspected of being infected with TB will not be irrigated or manipulated.

5. Confirmed Extrapulmonary TB

Airborne precautions and isolation may be discontinued upon TB physician order if the following criteria are met:

1. The chest x-ray has been reviewed and respiratory TB has been ruled out, **and**
2. Tissue infected with TB will not be irrigated or manipulated, **or**
3. Two weeks (14 doses) of drug therapy, when infected tissue is being, or will be, irrigated or manipulated (e.g., wound care of the infected site is being provided).

   Note: Airborne precautions and isolation may be extended at the discretion of the TB physician if there is: (1) delayed or lack of clinical improvement, (2) uncertainty regarding drug penetration to the infected tissue, or (3) concerns regarding drug resistance.

5. Conditions for Home Isolation

Note: If the conditions for home isolation cannot be met, alternate arrangements for isolation and airborne precautions, such as voluntary admission to a facility with an airborne infection isolation room, should be considered.

1. The person is medically stable and:

- Does not require additional diagnostic tests or procedures requiring admission to acute care, and
- Does not have co-existing indications for admission to acute care.

2. Adherence to home isolation is anticipated.
3. Treatment by directly observed therapy is, or can be, arranged and adherence to treatment is anticipated.
4. The person does not reside in a congregate setting with common airspace or air recirculation to other household units where non-household members have not been previously exposed (e.g., boarding house, long-term care or correctional facility).
5. All household members have been previously exposed to the infectious person and will be assessed as household contacts through contact investigation processes. If household members are tuberculin skin test (TST) negative they should be made aware of the risks of remaining in the environment.
6. Children under the age of five or immunocompromised persons are not present in the home unless they will be starting, or are already receiving, window prophylaxis therapy, treatment for LTBI or treatment for active TB.
7. Visitors are restricted with the exception of health-care providers.
8. The person receives education (written and verbal) regarding home isolation and agrees to comply with home isolation requirements:
   - The person must remain in the home environment unless attending essential medical appointments.
   - The person must wear a mask when attending essential medical appointments.
   - The person is restricted from attending work, school or any other public indoor environment.
   - The person does not use any form of public transportation. The person may travel by taxi for essential medical appointments provided they wear a mask.

     Note: Persons with infectious TB may spend time outdoors provided they are not in close contact with susceptible individuals, such as those that have not previously been exposed, for an extended period of time.

6. Home Isolation Assessment and Monitoring

Note: For the purpose of this section, Medical Health Officer (MHO) means the MHO responsible for the jurisdiction in which the client permanently or temporarily resides.

1. A Nursing Assessment and Client TB Service Plan form and TB Education Record shall be completed for each person admitted to the TBPC SK service. Refer to work standard 40-001-01 SW: Nursing Assessment and Client TB Service Plan – Procedure for Completing and work standard 40-001-02 SW: TB Education Record – Procedure for Completing.

   The home isolation section of the Nursing Assessment and Client TB Service Plan form shall be completed at the time home isolation is initiated in order to:

- Enhance the likelihood of adherence,
- Minimize the adverse effects of isolation, and
- Ensure arrangements to obtain necessary supplies and supports are in place for the individual and dependents, if any.

2. The local nurse involved in the care of the client in community shall directly monitor the plan and adherence to home isolation.
3. The TBPC SK Nurse Clinician shall directly monitor the plan and adherence to home isolation when the client resides in Prince Albert, Regina or Saskatoon. For all other communities, the TBPC SK Nurse Clinician and physician shall provide indirect monitoring of the plan and adherence to home isolation.
4. Promoting and monitoring adherence to home isolation requires ongoing communication between the client, TBPC SK, local health-care providers, the MHO and partners. Work standard 40-001-03 SW: Tuberculosis – Protocol for Promoting Client Adherence and Managing Non-adherence to Treatment and/or Isolation shall be followed when the client demonstrates an inability or unwillingness to adhere to home isolation.
5. The client's TB service plan should be reviewed and updated during the course of isolation as necessary and when changes to the plan occur. For example, when use of incentives or enablers are initiated.
6. In accordance with Saskatchewan's Public Health Act (*Public Health Act*, 1994, section 38), an MHO may issue a Public Health Order for infectious persons unable or unwilling to comply with home isolation and airborne precaution requirements and/or unable or unwilling to comply with alternate arrangements until such time as deemed non-infectious and no longer a public health risk. Refer to work standard Public Health Orders – Procedure for Enacting [development pending].

7. Discontinuation of Home Isolation

Note: At the discretion of the TB physician, criteria for discontinuation of airborne precautions and isolation among persons with cavitation on chest x-ray or known/suspected drug resistance may vary from what follows. Drug susceptibility tests or additional tests may be required prior to discontinuing airborne precautions and isolation.

1. Suspected Respiratory TB

Home isolation may be discontinued upon TB physician, MRP or designate order if the following criteria are met:

1. PCR (Xpert® MTB/RIF assay) negative, **or**
2. Three consecutive AFB-negative smears if PCR not available.

Note: Airborne precautions and home isolation should remain in effect at the discretion of the TB physician or MRP when TB is still strongly suspected, no other diagnosis has been made and the PCR and/or smears are negative. In this case, airborne precautions and home isolation may be discontinued according to criteria for AFB smear-negative, culture-positive respiratory TB.

2. Confirmed AFB Smear-Negative, Culture-Positive Respiratory TB

Home isolation may be discontinued upon TB physician order if the following criteria are met:

1. Drug therapy has been started and at least one dose taken, **and**
2. At the time the second dose is delivered, it is determined the first dose was tolerated well (i.e., the person did not experience side effects such as nausea, vomiting, hypersensitivity, etc.).

3. Confirmed AFB Smear-Positive Respiratory TB

Home isolation may be discontinued upon TB physician order if the following criteria are met:

1. Two weeks of drug therapy (10 doses if on five times a week therapy or 14 doses if on daily therapy), **and**
2. Clinical improvement.
    - A chest x-ray (CXR) should be obtained if there is no clinical improvement. If there is no change on the CXR, then the individual should continue home isolation and receive an additional week of drug therapy (five doses if on five times a week therapy or seven doses if on daily therapy).
    - Isolation may be discontinued if there is clinical improvement following the additional week of therapy. If clinical improvement is not evident, additional sputum should be collected (i.e., three consecutive sputum samples to be collected at least eight hours apart in a 24 hour period with at least one early morning specimen).

Note: Refer to work standard 60-001-01 SW: Home Isolation Discontinuation – Assessing Clinical Improvement for Persons with Smear-Positive Respiratory TB.

8. Travel

1. Suspected or Confirmed Respiratory TB:

Persons with suspected or confirmed respiratory TB shall not use public transportation until airborne precautions and isolation is discontinued. ***Exception:*** Travel by taxi for essential medical appointments is acceptable provided the client wears a mask.

Note: Persons with suspected or confirmed active TB requiring a level of care greater than what is locally available may be transported by air or ground ambulance in accordance with agency policy. If able, clients should wear a mask; staff and flight crew should wear an N95 respirator, if safe to do so. Travel should only occur for essential medical care.

2. Extrapulmonary TB:

- Persons with extrapulmonary TB are not considered infectious and may travel by public transportation provided the individual does not have concurrent respiratory TB.
- Draining lesions should be covered with an appropriate dressing. When feasible, a new dressing should be applied by a health-care provider prior to travel; the client should be counselled on how to dress the wound appropriately when this is not possible.

3. **Persons with LTBI:**
    - A medical evaluation should occur prior to travel for those with LTBI and new respiratory symptoms.
    - Individuals with LTBI that are not symptomatic and not undergoing medical evaluation for active TB may travel by public transportation.
4. **Negative TST or unknown TST result:**

    Persons with a negative TST, or whose TST status is unknown, and respiratory symptoms should consult their physician prior to travel by public transportation.

9. Discontinuation of Airborne Precautions and Isolation Prior to Travel

Note: At the discretion of the TB physician, criteria for discontinuation of airborne precautions and isolation among persons with cavitation on chest x-ray or known/suspected drug resistance may vary from what follows. Drug susceptibility tests or additional tests may be required prior to discontinuing airborne precautions and isolation.

1. **Travel within Saskatchewan:**

    Follow the discontinuation criteria for home isolation.

    Note: Travel within Saskatchewan is assumed to be less than eight hours in duration. This time includes delays after boarding, travel time, and delays after arrival.
2. **Travel outside Saskatchewan (domestic and international destinations):**

    Follow the discontinuation criteria for airborne precautions and isolation in acute care facilities.

10. Client and Family Education

The following information should be provided to clients and/or family members at the time airborne precautions and isolation are initiated:

1. General information regarding TB, its treatment, and client rights and responsibilities
2. Reason for airborne precautions and isolation as well as the specific requirements for isolation, including:
    - Anticipated length of isolation and process for discontinuing
    - Visitor restrictions
    - What to do if urgent or emergent medical care is required
    - What to do if an essential medical appointment is scheduled
    - What to do regarding routine activities such as attending work or school
    - Spending time outdoors
    - How to don, remove and dispose of a mask
3. Cough etiquette

11. Roles and Responsibilities

TB Prevention and Control Saskatchewan

1. Provide education, support and consultation to partners regarding the use of airborne precautions and isolation.
2. Collaborate with the MRP and Infection Prevention and Control program regarding airborne precautions and isolation for clients with suspected or confirmed infectious TB in facilities.
3. Notify the local MHO when isolation is initiated for confirmed cases and engage in case conferencing with the MHO when managing clients that are non-adherent to isolation.
4. As applicable, complete or support and/or assist partners to complete the client TB service plan, including a home isolation assessment and evaluation of assets or barriers that may promote or prevent adherence.
5. Provide order to initiate and discontinue airborne precautions and isolation for confirmed cases and, as applicable, for suspected cases.
6. Arrange admission to an acute care facility with an AIIR when home isolation is not appropriate or feasible.
7. Collaborate with partners in monitoring client adherence to isolation and removing barriers to isolation adherence.
8. As applicable, arrange incentives and enablers to promote adherence to isolation.
9. Collaborate with the local MHO, other providers, and partners regarding clients that do not adhere to isolation and knowingly place others at risk.
10. Advocate for appropriate airborne infection isolation infrastructure within the province.

Most Responsible Physician, Primary Care Physician

1. Ensure notification of facility Infection Prevention and Control when airborne precautions and isolation is indicated for a client within the given facility.
2. Provide order to discontinue isolation for clients with suspected active TB, as applicable.
3. As required, consult TBPC SK when evaluating persons with suspected active TB.
4. Collaborate with TBPC SK and partners to remove barriers to adherence.

Local Medical Health Officer

1. Provide consultation to TBPC SK and partners on issues related to non-adherence.
2. Collaborate with TBPC SK and partners to remove barriers to isolation adherence.
3. Collaborate with TBPC SK and partners regarding clients that do not adhere to isolation and knowingly place others at risk.
4. As necessary, enforce the *Public Health Act*, including issuing a Public Health Order, for clients that do not adhere to isolation and knowingly place others at risk.
5. As necessary, when conditions for home isolation cannot be met, issue a Public Health Order for clients that decline voluntary admission to a facility with an airborne infection isolation room.

6. Advocate for appropriate airborne infection isolation infrastructure within the province.

First Nations and Inuit Health Branch, Northern Inter-Tribal Health Authority, Saskatchewan and Athabasca Health Authority Public Health Programs

1. Provide information to local health-care providers regarding interventions and the need for client education.
2. Provide education and support to local health-care providers.
3. Collaborate with TBPC SK and partners to remove barriers to isolation adherence.
4. As applicable, arrange incentives and enablers to promote adherence.
5. As applicable, collaborate in monitoring client adherence to isolation.
6. Advocate for appropriate airborne infection isolation infrastructure within the province.

Infection Prevention and Control Programs

1. Collaborate with TBPC SK and the MRP regarding airborne precautions and isolation for clients with suspected or confirmed infectious TB in facilities.
2. Reinforce and/or provide education and training to local health-care providers regarding standards of practice to minimize the risk of infection to clients, visitors, and themselves.
3. Advocate for appropriate airborne infection isolation infrastructure within the province.

Nurse Responsible for Client Care in Community

1. As applicable, complete the Nursing Assessment and Client TB Service Plan form with the client at the time isolation is initiated.
2. Provide client and family education regarding airborne precautions and isolation.
3. Collaborate with TBPC SK and partners to remove barriers to adherence.
4. Provide incentives and enablers as arranged.
5. As required, complete a symptom assessment prior to discontinuation of home isolation.
6. Monitor client adherence to isolation and notify TBPC SK if non-adherence is a concern.
7. Assist in gathering information regarding the location of clients not adhering to isolation.

Appendix A: Elements of Airborne Precautions for Persons with Infectious TB

Element	In Facility	In Community
Placement	Airborne infection isolation room • If an AIIR is not available, transfer to a facility with an AIIR. • If transfer is not possible, place client in private room with door closed and HEPA filter unit in the room. • If a HEPA filter unit is not available, place client in private room with door closed. • Room doors to remain closed at all times including when client leaves for essential medical care or tests. • Consult TBPC SK when an AIIR is required, transfer out is not possible and the facility AIIR(s) already has a TB client admitted to the room. The most infectious person should then be placed in the AIIR.	Home isolation • If weather allows, windows may be opened to improve ventilation in the home and clear the air of infectious airborne particles.
Signage	• Post airborne precaution signage at all entrances to the room. Leave in place until the air has been cleared of infectious airborne particles.	• Not applicable
N95 respirator	• Required for health-care providers entering the room. • Change between clients, if experiencing breathing resistance or difficulties or if wet, soiled, or damaged.	• Required for health-care providers entering the home. • Change if experiencing breathing resistance or difficulties, or if wet, soiled or damaged.
Mask	• Required for clients when leaving the AIIR, if able to wear and tolerated.	• Required for clients when leaving the home for essential medical tests and appointments.
Visitors	• Restrict to immediate household members and screen visitors for symptoms of active TB (i.e., cough, fever, weight loss, hemoptysis, night sweats and fatigue). • Children under five years of age and persons that are immunocompromised should be discouraged from visiting.	• Restrict visitors.
Education	• Required for clients, family members and visitors.	• Required for clients, family members and visitors. Refer to the Home Isolation fact sheet.

Essential medical tests and appointments	• When possible, appointments should be scheduled when a minimum number of staff and other clients are present, such as at the end of the day. • The receiving department must be notified that airborne precautions are required prior to client arrival. Emergency Medical Services must be notified if transporting the client. • The client must wear a mask when outside the AIIR, if able to wear and tolerated. If a mask cannot be worn, transport should be planned to limit the exposure of other individuals (e.g., transport in an empty elevator, bypass waiting rooms). An N95 respirator should then be worn by personnel transporting the client.	• Appointments should be scheduled when a minimum number of staff and other clients are present, such as at the end of the day. The care provider(s)/receiving department must be notified that airborne precautions are required prior to client arrival. • The client must wear a mask when leaving the home for essential medical appointments. • Public transportation, such as a bus, must not be utilized. Travel by taxi is allowed in order to attend essential medical appointments provided the client wears a mask. Windows should remain open during travel when possible to improve ventilation. Emergency Medical Services must be notified if transporting the client.
Room closure[1]	• Upon client transfer or discharge, the AIIR must remain empty and unoccupied, with the door closed, for a period of time in order to clear the air of infectious airborne particles. The amount of time will vary for each room.	• Not applicable. If weather allows, windows may be opened to improve ventilation and clear the air of infectious airborne particles during the isolation period and/or at the time isolation is discontinued.
Environmental cleaning	• As per routine cleaning practices. • Staff must wear an N95 respirator when cleaning while the room is in use and during the time of room closure following client transfer or discharge.	• As per routine cleaning practices. Enhanced cleaning is not required as TB is not acquired from environmental surfaces.
Pregnant Health-care Providers	• Reassignment of pregnant women, or women of childbearing age, is not necessary when caring for clients with infectious TB. Pregnancy does not make a person more susceptible to infection with TB or progression to active TB, if infected.	

[1] Time needed to remove airborne infectious contaminants once generation of infectious droplets has ended. Refer to Canadian TB Standards, 7th ed., chapter 15 for ventilation recommendations for selected areas in health-care facilities.

Adapted from: Public Health Agency of Canada, Canadian Thoracic Society & Canadian Lung Association. (2014) Canadian Tuberculosis Standards, 7th edition.

ACH	Minutes required for 99% removal	Minutes required for 99.9% removal
2	138	207
4	69	104
6	46	69
12	23	35
15	18	28
20	14	21
50	6	8

Appendix B: Recommended TB Infection Prevention and Control Practices for Medical Imaging

The following practices should be incorporated within medical imaging departments that do not have appropriate environmental controls to meet requirements for airborne precautions. In general, most procedures performed in medical imaging departments are of insufficient duration to allow transmission. Despite this, every reasonable effort to prevent transmission should be undertaken.

<table>
<tr><th colspan="8">Recommended Infection Control Practices</th></tr>
<tr><th>Test</th><th>HEPA filter unit</th><th>Booking</th><th>Room closure</th><th>Mask (client)</th><th>N95 respirator (employee)</th><th>Signage</th><th>Environmental cleaning</th></tr>
<tr><td>Procedure with intubation anticipated</td><td>Yes. Borrow from another service area as necessary.</td><td>Book when a minimum number of staff/clients are present such as at the end of the day.</td><td>Yes, 2 hours or as per local Infection Prevention and Control policy.</td><td>No</td><td rowspan="11">Yes</td><td rowspan="11">Yes, airborne precaution sign to be posted while client in room and for period of room closure if applicable.</td><td rowspan="11">As per routine practices. Staff may clean the room during the period of room closure provided they wear an N95 respirator.</td></tr>
<tr><td>MRI</td><td>No. HEPA filter units contain metal.</td><td rowspan="10">If operationally feasible, schedule at the end of the day.</td><td rowspan="10">No</td><td rowspan="10">Yes, if feasible and client able to wear and tolerate. If mask cannot be worn, transport client in an empty elevator and bypass waiting rooms.</td></tr>
<tr><td>X-ray, including CXR</td><td rowspan="9">If available in the department or easily obtained. Not required to borrow from another service area as duration of procedures is short.[1]</td></tr>
<tr><td>Thoracentesis</td></tr>
<tr><td>Paracentesis</td></tr>
<tr><td>CT</td></tr>
<tr><td>CT-guided biopsy (fine needle aspiration)</td></tr>
<tr><td>CT-guided biopsy (core)</td></tr>
<tr><td>Drain placement</td></tr>
</table>

[1]*Procedures anticipated to be 30-60 minutes in duration or less.*

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