Tuberculosis Control

A Reference Guide to the Tuberculosis Program In Saskatchewan

2002
Rev. 2005
ACKNOWLEDGEMENTS

This tuberculosis reference guide was compiled by a committee composed of Provincial, Federal and First Nations' health care staff who work mainly in the area of tuberculosis control.

The manual is intended to be a reference guide that will enable health care personnel to understand the TB program and to participate as a member of the TB team when required.

The committee gratefully acknowledges the helpful feedback it has received from all those who read the initial drafts of the manual.

The TB Education Committee has revised the manual in May of 2002.

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1. FOREWORD

A team of Provincial, Federal and First Nations' Health Care Staff manages the diagnosis and treatment of tuberculosis in Saskatchewan.

The principles of Tuberculosis Control are based on the Canadian Standards for Tuberculosis Control, with modifications for Saskatchewan application.

The program provides “at home - in community” treatment that is designed to meet the needs of the client.

Strong relationships and teamwork are emphasized to ensure that all clients are treated with respect and understanding.

The principles of Surveillance, Detection, Treatment, and Prevention pave the way for the elimination of tuberculosis in this province.

This manual contains the current information required to join the team in the fight to control tuberculosis.
### GLOSSARY OF TERMS

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Acquired Drug Resistance</strong></td>
<td>Individuals with initial sensitive organisms are found to have resistant organisms after a period of drug treatment. *</td>
</tr>
<tr>
<td><strong>Active Tuberculosis</strong></td>
<td>Tubercle bacilli have entered the body and are replicating (growing). Evidence of disease is present as positive cultures, symptoms, or chest x-ray changes.</td>
</tr>
<tr>
<td><strong>Booster Effect</strong></td>
<td>An initial non-significant skin test result followed by a significant reaction on repeat testing one to two weeks later. This occurs many years after infection, particularly in adults older than 50 years.</td>
</tr>
<tr>
<td><strong>Compliance</strong></td>
<td>The number of doses taken, divided by the number of doses prescribed.</td>
</tr>
<tr>
<td><strong>Contacts</strong></td>
<td>Individuals who have breathed the same indoor air ten hours or more one month prior to the date of diagnosis of a person with primary tuberculosis or smear positive tuberculosis. The emphasis is on the time and proximity of exposure.</td>
</tr>
<tr>
<td><strong>Cure</strong></td>
<td>Client is considered cured when 90% or greater of prescribed doses have been taken.</td>
</tr>
<tr>
<td><strong>Health District Contact</strong></td>
<td>An individual selected by the health district to be the prime contact person for that district to the Tuberculosis Control Program.</td>
</tr>
<tr>
<td><strong>Inactive tuberculosis</strong></td>
<td>Previous history of tuberculosis which is currently inactive.</td>
</tr>
<tr>
<td><strong>Index Case</strong></td>
<td>Initial client with infectious TB, (this may be the source case), or primary TB which lead to the investigation of contacts.</td>
</tr>
<tr>
<td><strong>Induration</strong></td>
<td>The quality of being hard; a raised firm area.</td>
</tr>
<tr>
<td><strong>Infectious Tuberculosis</strong></td>
<td>Smear positive pulmonary tuberculosis can transmit infection to other people.</td>
</tr>
<tr>
<td><strong>Latent TB Infection (LTBI)</strong> (see Tuberculosis Infection)**</td>
<td>Tubercle bacilli have entered the body but are dormant (not growing). The skin test shows a significant reaction but there is no evidence of disease.</td>
</tr>
<tr>
<td><strong>Mantoux</strong></td>
<td>A skin test used to determine persons who have been infected with (Tuberculin Skin Test) Mycobacterium tuberculosis.</td>
</tr>
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</table>

* See [Canadian Tuberculosis Standard 2000](#)
<table>
<thead>
<tr>
<th><strong>Medication Record Audit</strong></th>
<th>A verification of an action, i.e. drugs were actually taken/not taken.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multi-drug Resistant TB</strong></td>
<td>Resistant to isoniazid (INH) and rifampin (RMP) with or without resistance to other drugs.</td>
</tr>
<tr>
<td>(MDR-TB)</td>
<td></td>
</tr>
<tr>
<td><strong>Non-Infectious Tuberculosis</strong></td>
<td>Smear negative pulmonary tuberculosis is much less likely to transmit infection to others. Non-pulmonary tuberculosis will not transmit infection to other people.</td>
</tr>
<tr>
<td><strong>Positive Skin Test</strong></td>
<td>See Significant Test Skin Reaction</td>
</tr>
<tr>
<td><strong>PPD - 5TU</strong></td>
<td>A tuberculin, purified protein derivative for intradermal tuberculin testing. The standardized dose is 5 Tuberculin Units (5TU). This is equal to 0.1 ml.</td>
</tr>
<tr>
<td><strong>Primary Resistant TB</strong></td>
<td>Previously untreated individuals have resistant organisms because of infection from another source. *</td>
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<tr>
<td><strong>Primary Tuberculosis</strong></td>
<td>Tuberculosis which develops during the first 2 years following initial infection with M. tuberculosis (active disease).</td>
</tr>
<tr>
<td>**Reactivation (Secondary) **</td>
<td>Tuberculosis which develops more than 2 years after the primary infection.</td>
</tr>
<tr>
<td><strong>Tuberculosis</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Relapse</strong></td>
<td>The recurrence of active disease, after a period of treatment and presumed cure for a minimum of 6 months after treatment is completed.</td>
</tr>
</tbody>
</table>
| **Significant Skin Test Reaction** | Equal to or greater than 5 mm in:  
  - Contact to Infectious TB  
  - Persons with HIV/AIDS  
  - Abnormal chest x-ray suggestive of old TB  
  Equal to or greater than 10 mm in all others. |
| **Source Case**            | The original infectious case which started the transmission of the infection. |
| **Treatment Failure**      | Two or more positive cultures over an interval of one month after 5 or 6 months of treatment, or two positive cultures in different months during the last three months of treatment. * |
| **Tuberculin Converter**   | A person whose initial tuberculin reaction increased within 2 years from a baseline of:  
  - less than 5 mm to greater than 10 mm, |

* See [Canadian Tuberculosis Standard 2000](#)
| **Tuberculosis Infection (see Latent TB Infection)** | Tubercle bacilli have entered the body but are dormant (not growing). The skin test shows a significant reaction but there is no evidence of disease. |
| **Vesiculation** | Formation of vesicles - a circumscribed, elevated, fluid-containing lesion of the skin - a blister. |
3. **ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>5TU</td>
<td>5 Tuberculin Units</td>
</tr>
<tr>
<td>AFB</td>
<td>Acid Fast Bacillus</td>
</tr>
<tr>
<td>BCG</td>
<td>Bacille Calmette - Guerin</td>
</tr>
<tr>
<td>CDCN</td>
<td>Communicable Disease Control Nurse</td>
</tr>
<tr>
<td>CHN</td>
<td>Community Health Nurse</td>
</tr>
<tr>
<td>CTS</td>
<td>Canadian Tuberculosis Standards (2000)</td>
</tr>
<tr>
<td>DOP</td>
<td>Directly Observed Prophylaxis</td>
</tr>
<tr>
<td>DOT</td>
<td>Directly Observed Therapy</td>
</tr>
<tr>
<td>FNIHB</td>
<td>First Nations and Inuit Health Branch</td>
</tr>
<tr>
<td>HCW</td>
<td>Health Care Worker</td>
</tr>
<tr>
<td>HD</td>
<td>Health District</td>
</tr>
<tr>
<td>LTBI</td>
<td>Latent Tuberculosis Infection</td>
</tr>
<tr>
<td>MDR-TB</td>
<td>Multi Drug Resistant Tuberculosis</td>
</tr>
<tr>
<td>MHO</td>
<td>Medical Health Officer</td>
</tr>
<tr>
<td>MMR</td>
<td>Measles, Mumps, Rubella Vaccine</td>
</tr>
<tr>
<td>MTB</td>
<td>Mycobacterium Tuberculosis</td>
</tr>
<tr>
<td>NIC</td>
<td>Nurse in Charge</td>
</tr>
<tr>
<td>NITHA</td>
<td>Northern Inter-Tribal Health Authority</td>
</tr>
<tr>
<td>PCN</td>
<td>Primary Care Nurse</td>
</tr>
<tr>
<td>PHN</td>
<td>Public Health Nurse</td>
</tr>
<tr>
<td>PHN</td>
<td>Personal Health Number (SHSP, Hospitalization Number)</td>
</tr>
<tr>
<td>PPD</td>
<td>Purified Protein Derivative</td>
</tr>
<tr>
<td>SAT</td>
<td>Self Administered Therapy</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>TBN</td>
<td>Tuberculin</td>
</tr>
<tr>
<td>TBPW</td>
<td>TB Program Worker</td>
</tr>
<tr>
<td>TST</td>
<td>Tuberculin Skin Test</td>
</tr>
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</table>
4. INTRODUCTION

Why Does Tuberculosis Continue to Survive?

- The treatment of infectious cases is often started after contacts are infected: 20% of clients are infectious when they are discovered and 50% of the contacts are infected.

- When TB is discovered at autopsy, 40% of these cases are infectious and 50% of their contacts are infected.

- 7% of health care workers are converters. 90% are unaware that they are contacts to TB. These sources are often not discovered.

- Many infectious clients are not sick and some have non-significant skin test reactions, therefore TB goes undetected.

- Contact lists may be incomplete.

- Some contacts are not skin tested.

- Some contacts are not examined.
5. PATHOGENESIS OF TUBERCULOSIS

The tubercle bacillus is transmitted from one person to another in minute droplets of moisture produced during breathing, speaking, singing, coughing, and sneezing. The moisture evaporates leaving "droplet nuclei" in the air which are carried by air currents. Inhalation of these nuclei into the alveoli is necessary for infection to be established.

Only particles less than 10 micra in size reach the alveoli. Particles 10 - 100 micra will be trapped in the upper respiratory passage and expectorated. Particles larger than 100 micra do not remain suspended in the air and are not inhaled.

In the alveoli, the bacilli begin to multiply and disseminate hematogenously. Secondary foci of infection may be established in the lymph nodes, kidneys, bones, peritoneum, skin, meninges, and all body organs.

Cell mediated immunity develops at about six weeks. This is when the skin test reaction becomes significant. With this process, some of the bacilli are killed while some remain viable though dormant.

In some cases the dormant bacilli begin to grow years after the primary infection. The most common reactivation sites are areas of high oxygen tension or of tissue injury, i.e., the apices of the lung, the cervical lymph nodes, renal cortex, epiphysis of bone, cerebral cortex etc.

If disease occurs within two years of infection, by definition it is primary tuberculosis.

If disease occurs beyond two years of infection, by definition it is reactivation tuberculosis (reactivation of the primary infection).

For More information: See Resource List in Appendix
6. SYMPTOMS

- Symptoms vary depending upon the site of disease.
- Cough for more than one month.
- Unexplained fever for more than one week.
- Pneumonia unresponsive to antibiotics.
- Hemoptysis.
- Additional symptoms include chills, night sweats, fatigue, loss of appetite, and weight loss. These are late symptoms of far-advanced disease.

6.1 High Risk Populations:

- HIV seropositive / AIDS.
- IV drug users.
- Inner city homeless.
- Aboriginal.
- Foreign born.
- Persons over 65 years of age.

6.2 Common Sites:

6.2.1 Pulmonary/Lungs: 85% of cases
1. Bronchial Tree:
   - Direct invasion or via lymphatics.
   - Erosion by lymph nodes.
   - Tuberculous bronchitis.

2. Pleura:
   - About 5 cases of pleurisy with effusion are reported annually. Commonly presents as chest pain.

6.2.2 Extra-pulmonary: 15% of cases
Listed in order of frequency of occurrence:
1. Lymph nodes: 50% of all extra-pulmonary (7.5% of all cases).
   - Most commonly cervical, less frequently axillary and inguinal. Commonly present as a lump.
2. Genitourinary:
   - Cortex of kidney - pelvis, ureter, bladder. Commonly present with dysuria and hematuria.
   - Male genital tract - prostate, epididymis. Commonly present with hematuria or as a mass in the testicle.
   - Female genital tract - endometrium, uterine tubes. Commonly present as inflammation.
   - Lesions of other sites such as pulmonary or bone may also be present.

3. Bones and Joints:
   - Thoracic Spine (Pott’s Disease) - commonly presents with back pain.
   - Other joints - knees and ankles - present with swelling and pain, and later drainage.

4. Skin:
   - Reported to be rare in North America. About one case per year is reported in Saskatchewan.

5. Central Nervous System:
   - Meningitis.
   - Tuberculoma may present as a space-occupying lesion.

6. Gastro-Intestinal System:
   - Peritoneum - presents with abdominal distention, pain.
   - Bowel - diarrhea, obstruction and/or perforation.
   - Hepatic involvement with tubercles.

7. Eyes:
   - Invasion of the eye and tubercle formation is rare.
   - About one case of phlyctenular conjunctivitis is reported every three years.
7. **DIAGNOSIS**

The diagnosis of Mycobacterium Tuberculosis (M. Tuberculosis) includes:

- Clinical Investigation.
- Tuberculin Skin Test (Mantoux).
- Chest x-ray.
- Specimen Smear and Culture for Acid Fast Bacillus (AFB).

7.1 **Clinical Investigation:**

The client is ill and presents for investigation. The physician or nurse may or may not suspect tuberculosis. Investigations are initiated. These, e.g. a chest radiograph, may raise the suspicion of TB. Sputum is sent for culture. If the smear or culture is positive, the client is referred to the TB Clinic.

A complete history is obtained through the family doctor or nurse including:

- Exposure to tuberculosis.
- Previous tuberculosis and treatment.
- Previous preventive therapy.
- BCG, previous Mantoux tests, chest x-rays.
- Illnesses associated with increased risk (diabetes, immunodeficiency such as HIV/AIDS, transplants or drugs, alcoholism, malnutrition).
- Personal, family and social history.

7.2 **Tuberculin Skin Test (Mantoux):**

The Mantoux test should be used to screen individuals who may have been infected with *M. Tuberculosis*.

**Contraindications to Mantoux Testing**

- Skin test must not be done in an area of broken, inflamed, scarred or infected skin.
- Infants less than 6 weeks of age should not be skin tested because reactivity does not develop before that age.
- 4-6 weeks following a viral infection(s) (such as rubeola, influenza, mumps).
- Injection of a live (MMR, MR) vaccine within the previous 4-6 weeks.

**NOTE:**

- *Live vaccines can be administered concurrently with Mantoux testing.*
- *Pregnancy is not a contraindication to Mantoux testing.*
- *Minor illness such as a cold is not a contraindication.*
- *If client reports a previous large reaction, test may be omitted.*
7.2.1 Procedure for Mantoux Test:

- Obtain informed consent.
- Prepare the 0.1 ml (5TU, PPD) test dose in a Tuberculin syringe using standard nursing procedure.
- Administer the dose intradermally into the flexor surface of the forearm approximately 3 finger widths below the antecubital space in an area free from blemishes, scars or broken skin. (See Figure 1. page 17)
- A tight 10mm wheal should form at site of insertion. If wheal does not form, injection has been too deep and must be repeated on the opposite arm. (See Figure 2. page 17)

**NOTE:** You may swab the site with alcohol, (or suitable skin disinfectant), prior to the injection; however, post injection swabbing, if required, should be done with a dry cotton swab. **Do Not** cover with a Band-Aid.

PPD Solution Management:

- PPD must be kept refrigerated at 2-8°C (35 - 46°F)
- Date vial when opened. Solution may be used for 1 month after opening. If vial was not dated by first user- discard.
- Do **not** inject air into vial before withdrawing.
- Draw up PPD and use within one hour.

7.2.2 Reading the Mantoux:

- The standard time for reading the test is 48-72 hours. However, induration of 10 mm or greater at 6-24 hours and at 72-96 hours is recorded.
- Palpate and measure the transverse diameter of the induration only. A pen can help you measure induration. On each side of the wheal, place a mark where the pen meets the elevation of the wheal and measure the transverse diameter between the marks (See photographs, page 18)
- Induration is recorded in mm (e.g. No induration is recorded as 0mm). The words positive and negative are not used. (See glossary for meaning of test results - significant vs. non-significant)

**NOTE:** Erythema is not measured. Erythema may be due to components in the PPD (Purified Protein Derivative) and is self-limiting.

- Record results on Tuberculin Report Form and the appropriate client record. Send all tuberculin test results (including non-significant test results) to TB Control Saskatoon (sample Report Form page 20).
Figure 1: Diagram of Intradermal Injection

Figure 2: Photograph of Wheal following Intradermal Injection
Figure 3: Photograph of Reading Induration

Figure 4: Photograph of Blistered Reaction
7.2.3 **Client Instructions:**

- Instruct the client to return in 48 - 72 hours for reading of the test at a mutually convenient time.
- Do not scratch.
- Do not apply a Band-Aid.

7.2.4 **Possible Complications at the Site:**

- Pain, itching, blister and sometimes necrosis. Cover with dry gauze and cold packs.
- Aching, swelling around elbow and axilla: Refer to physician.

7.2.5 **Treatment of Complications:**

- Cold packs.
- Antipruritics (Calamine lotion, Baking soda and water, etc.).
- Adrenalin 1:1000 available for anaphylaxis.
- Cover blister with dry gauze.
- Refer to physician if infection is suspected.

7.2.6 **Causes of False Negative Reactions in Infected Persons:**

1. Factors related to the person being tested.
   1.1 Physiological factors:
   - The anergic client (who cannot react to any skin test).
   - Nutrition: Severe protein depletion.
   - Age:
     - Infants less than 6 weeks of age.
     - Adults over age 50 -- sensitivity may have waned over time.
       Should be retested within two weeks to observe a booster effect.

1.2 Far advanced disease.

1.3 Viral Infections such as measles.

1.4 Having received a live vaccine in the past 4 weeks. (repeat skin test in 4 – 6 weeks).

1.5 Drugs:
   - Corticosteroids and many other immunosuppressive agents.

1.6 Diseases Affecting Lymphoid Organs:
   - Hodgkin’s Disease, lymphoma.
   - HIV/AIDS.
   - Chronic Lymphocytic Leukemia.
   - Sarcoidosis.
2. Metabolic Complications:
   - Chronic renal failure.

3. Factors Related to the Purified Protein Derivative (PPD):
   - Improper storage (exposure to light and heat).
   - Chemical denaturation of test dose: Do not prepare test dose more than one hour prior to administration.

4. Factors related to the Method of Administration of PPD:
   - Injection of too little antigen.
   - Delayed administration after drawing PPD into syringe.
   - Injection too deep.

5. Factors Related to Improper Reading of the Test and Recording the Results:
   - Inexperienced reader (measuring or recording erythema).
   - Error in recording of reactions. Record reactions in mm, not ml or cm.

7.2.7 Tuberculin Report Form:

   - Ensure form is filled in completely.
   - Forward to TB Control Saskatoon.
   - If test was given but individual failed to show for reading, repeat the test.
   - Do Not Send In An "Incomplete" Form.
   - Record all TBNs on Health Record.

Figure 5: Tuberculin Report Form
7.3 Chest X-Ray:

Chest X-rays should be obtained on all individuals who:

- Have a Mantoux reaction equal to or greater than 5 mm induration if a contact to infectious tuberculosis.
- Are immunocompromised and have a Mantoux reaction equal to or greater than 5 mm.
- Cough for longer than one month, even if the Mantoux reaction is less than 5 mm.
- Unexplained fever for more than one week, even if the Mantoux reaction is less than 5 mm.
- Is part of a surveillance group with a Mantoux reaction equal to or greater than 10 mm.
- Is TB a suspect even if the Mantoux test shows no reaction.
- Have a significant Mantoux reaction and have not previously been examined for TB.

NOTE:

Mass x-ray surveys are no longer considered to be useful because the yield for TB is low. However, x-ray examinations that are performed as a part of the contact tracing procedure are useful.

7.4 Laboratory Specimens:

A positive culture of M. tuberculosis (MTB) is the "Gold Standard" for the diagnosis of tuberculosis. Specimens collected include:

- Sputum.
- Lung tissue.
- Gastric washings.
- Bronchial washings.
- Pleural fluid.
- Lymph node tissue.
- Biopsy for culture and histology.
- Genitourinary (urine, endometrial).
- Cerebrospinal fluid (CSF).
- Bone marrow.

7.4.1 General Guidelines for AFB Specimens:

1. Collect specimens for diagnosis before the start of chemotherapy.
2. Specimens are to be collected in a sterile wide mouthed container provided by either the Saskatoon TB lab or the Provincial lab.
3. Use the cardboard mailers provided by either the Saskatoon TB lab or the Provincial lab. Always send or deliver each specimen as soon as it is collected to avoid overgrowth of normal flora, resulting in contaminated cultures.
4. When delays in delivery cannot be avoided, storage of specimens in the refrigerator at 4°C.
Information required for all AFB Specimens: (see Appendix G, page 75)

- Client’s Name (the name used that you will be referring to).
- Personal Health Number (Treaty or Band # not essential).
- Date of Birth (not age).
- Physician’s Name (If someone doing locum, state and ask for record to go to hospital or clinic).
- Name of Hospital or Clinic.
- Specimen Type (very important, if not marked, described as undefined).
- Date of Collection.
- All specimens should state FOR ACID-FAST CULTURE.

* Specimen will not be processed if Health Number is not on requisition.

NOTE:

- Name and type of specimens should also be recorded on specimen jars. If AFB containers are not available, place specimen into a sterile container.
- Contact Saskatoon TB Lab or Provincial Lab if uncertain of procedure.
- Be sure to include the full address where the report is to be sent.
- If the specimen is improperly packaged or the requisition is missing the specimen will not be processed and the sender will not be notified.
- Use TB Control Physicians or local MD's name on requisitions.
7.4.2 Procedure for Sputum Collection:

- Collect 3 early morning specimens on three successive days.
- Instruct the client to cough deeply to provide a specimen from deep in the lungs - usually best specimens are obtained upon getting up first thing in the morning. (2-5ml of sputum is optimal) Saliva is not acceptable.
- Ask the client to return the specimen container that day or have someone pick it up.
- Ensure the screw cap on the container is tight. **Do not tape cap.**
- Before giving container to client, ensure the client's name, type of specimen and the date it was collected are on the specimen container label.
- Wrap absorbent packing around specimen container, then place the specimen container in a plastic zipper-type bag, if provided, to catch any contents that may spill during transit.
- Attach the requisition around the outside of the plastic bag and place everything in the mailer container provided by the lab.
- Send out the specimens as soon as they are collected to ensure that they arrive in the lab as soon as possible.
- If specimens cannot be sent out immediately, store them in a refrigerator at 4°C until they can be sent.

**NOTE:**  
*It is essential that the client understands what is expected of them. If they return the specimen and it appears unsatisfactory, see if with further instruction you can get a better specimen. Also, check to make sure name and specimen type is on the container, that the requisition form is filled in correctly and containers have their lids screwed on properly.*

*THE POSTAL SERVICE NO LONGER WILL TRANSPORT SPECIMENS; THEREFORE ANOTHER MODE OF TRANSPORTATION MUST BE USED.*

7.4.3 Procedure for Gastric Washing for AFB:

We recommend in hospital:

1. **Client Fast:**
   - Six hour overnight fast (in infants with a four hourly schedule, four hour fast).
   - The recommended site is the hospital to improve the yield.
2. Gastric Wash:
   - Moisten nasogastric tube, (smallest tube possible for client comfort), with water.
   - Introduce tube through the nose or the mouth.
   - Aspirate 5-10 mls of gastric contents with a disposable syringe.
   - Place aspirate into a sterile AFB specimen jar.
   - Introduce gastric wash (1 ml of sterile water, per kg. weight of client to a maximum of 50 mls) through the tube.
   - Aspirate wash and put into the same jar as initial gastric aspirate.

3. Specimen Collection:
   - Where transportation time to the laboratory exceeds six hours, specially prepared specimen bottles should be used. This inhibits the growth of other bacteria. They are available through the Tuberculosis Laboratory, Royal University Hospital, Saskatoon and Provincial Lab, Regina.
   - Each specimen should be collected and sent separately each day.

7.4.4 Urine Specimens:
1. Collect 3 early morning specimens on 3 successive days.

2. Collect the first voiding (entire amount) of the day and place in as many AFB containers as needed. This is important since there are fewer AFB in a urine specimen and the entire amount is needed to better retrieve organisms that may be present.

3. Follow general instructions for collecting and sending specimens as outlined above.

7.4.5 Bronchial Washing:
   - Not done in the field setting.

7.4.6 Lymph Node for Culture:
   - Not done in the field setting.
   - Send for AFB cultures. Do NOT put in Formalin.

7.4.7 Tissue Samples:
   - Not done in the field setting.
   - Send for AFB culture. Do NOT put in Formalin.

7.4.8 Cerebrospinal Fluid:
   - Not done in the field setting.
   Cerebrospinal fluid from a case of tuberculous meningitis may produce a “spider web” clot. If this occurs, a portion of the membranous material should be used for smear preparation as this fibrin clot or “web” will tend to contain a higher proportion of tubercle bacilli than the fluid part of the specimen. The specimen should be collected aseptically.
8. TREATMENT OF TB

8.1 Latent TB Infection (Infected Persons):

- Infected persons (those with significant Mantoux reactions) are examined to rule out the presence of active disease.
- If a person is infected but does not have active disease they may be offered preventive treatment.

NOTE: An infected person may not have active TB and a person with active TB may not be infectious.

Figure 6: Getting the Client into the System
8.2 **Active Disease:**

- If a person is found to have TB (active disease) they are treated.
- If a person is found to be infectious they may be isolated for two weeks or longer after starting drug treatment.
- Contact tracing may be initiated to determine if others have been infected or to find a source of TB. (See page 48 for Contact Tracing Information.)

**NOTE:**

- *The period of isolation may need to be extended on those persons with drug resistant TB.*
- *For further information on isolation or contact tracing contact TB Control.*
- *For Hospital Isolation Procedures. (see Appendix C, page 67)*
8.2.1 Drug Treatment:

**NOTE:**
- All drugs are packaged and shipped in unit-dose format from the TB pharmacy in Saskatoon. For more information contact TB Control. (see Appendix D, page 68)

### Most Commonly Used Drugs: Dosage, Side Effects

<table>
<thead>
<tr>
<th>First-Line drug</th>
<th>Numbers in parenthesis are children dosages</th>
<th>Daily dose in adults &amp; children mg/kg</th>
<th>Usual daily dose, mg</th>
<th>Twice weekly dose, mg</th>
<th>Side Effects</th>
<th>Adverse Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoniazid INH</td>
<td>5 (10-20) mg/kg</td>
<td>300</td>
<td>900-1200</td>
<td>Nausea, vomiting, fatigue, ↑appetite</td>
<td></td>
<td>Hepatitis, Paraesthesia, Skin rash</td>
</tr>
<tr>
<td>*Rifampin RMP</td>
<td>10 (10-20) mg/kg</td>
<td>600</td>
<td>600</td>
<td>Nausea, vomiting</td>
<td></td>
<td>Hepatitis, flu-like illness, drug interactions</td>
</tr>
<tr>
<td>Pyrazinamide PZA</td>
<td>15-30 mg/kg</td>
<td>1500-2000</td>
<td>2500</td>
<td>Nausea, vomiting</td>
<td></td>
<td>Hepatitis, elevated serum uric acid level, arthralgia</td>
</tr>
<tr>
<td>Ethambutol EMP</td>
<td>15-25 mg/kg</td>
<td>800-1200</td>
<td>2400</td>
<td>Nausea, vomiting</td>
<td></td>
<td>Retro bulbar neuritis</td>
</tr>
<tr>
<td>Streptomycin SM</td>
<td>15(20-40) mg/kg</td>
<td>1000</td>
<td>1000</td>
<td></td>
<td></td>
<td>Vertigo, tinnitus, renal failure</td>
</tr>
<tr>
<td>Vitamin B6</td>
<td></td>
<td>25</td>
<td>Optional</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Rifampin will discolour urine but is not cause for concern.*

See: *Canadian Tuberculosis Standards 2000* for second line drugs page 118, and pages 89-92 for additional information on adverse effects.
8.2.2 Drug Regimen:

Canadian Tuberculosis Standards 2000

- Regimen options for the initial treatment of tuberculosis in children and adults.

<table>
<thead>
<tr>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily INH, RMP, &amp; PZA for 2 months, then INH &amp; RMP 2/wk for 4 months.</td>
<td>Daily INH, RMP &amp; PZA for 2 weeks, then 2/wk for 6 weeks, then INH &amp; RMP 2/wk for 4 months.</td>
<td>Daily INH &amp; RMP for 1 month, then INH &amp; RMP 2/wk for 8 months.</td>
</tr>
</tbody>
</table>

EMB included in all options until sensitivities available in areas with ≥ 4% drug resistance.

Saskatchewan TB Control Treatment Options:

1. DOT - Directly Observed Therapy.
2. SAT - Self-Administered.
3. DOP - Directly Observed Prophylaxis.

*Note: All regimens administered 2/wk or 3/wk should be directly observed for the duration of therapy.*
8.2.3 Directly Observed Therapy (DOT):

Directly Observed Therapy (DOT) is the process whereby the ingestion of every dose of medication is directly observed. It has been associated with a significantly improved outcome for both the individual and the program. DOT is the Canadian Standard for TB treatment to prevent:

1. The development of drug resistance and
2. The relapse of TB. (Adapted from Canadian Tuberculosis Standards, 2000)

Rationale for a DOT Program:

The main factor that interferes with lifetime cure is non-compliance of the client, which leads to failure to complete the prescribed regimen and then often to the development of drug-resistant organisms. (Canadian Tuberculosis Standards 2000, page 84 & 87)

Non-compliance is a universal problem. 80% of people do not take medicine as prescribed. The TB health care team requires, an objective way of knowing what doses were or were not taken. A Directly Observed Program with an audit provides this information. Developing a relationship with the client shows a sense of caring and gives support to the client.

Treatment, which is not directly observed, is substandard treatment.

Steps in a DOT Program:

1. RN & TBPW checks the new supply of medication when it arrives to ensure that the medications are correct dosage amounts and both sign for count on medication record.

2. RN/TBPW or designated trained person:
   a) Starts new supply of medication on given start date.
   b) Does not use medications from a previous month’s supply.
   c) Delivers medications to a place convenient to client and observes client swallow the medicine.
   d) Records on medication record AFTER doses are administered.
   e) If client leaves community or moves, do not send medications with the client. RN contacts TB Control, who arranges for medication to be administered DOT in new location.
   f) Returns all packaging and original page of medication record to TB clinic that serves the area (Saskatoon, Regina, or Prince Albert), prior to day the next supply of medications start.

NOTE: Medication administered twice weekly must be given at least 72 hour apart. e.g. (Mon-Thurs. or Tues-Fri)
8.2.4 Self Administered Therapy (SAT):

When DOT is not possible, SAT may be chosen as the method of treatment. In order to decrease the possibility of drug resistance for those on SAT:

- Drugs are being sent out in 7-day supplies to better assess compliance.
- Weekly home visits are made to deliver the medication and to pick up the used bubble pack to audit compliance.
- Medications are never left in the home if the client is not there to receive them.
- Clients are required to attend the TB Clinic monthly.

**NOTE:**
*The decision to implement SAT is made by the Drug Delivery Team.*

8.2.5 Directly Observed Prophylaxis (DOP):

- **Treatment of Latent TB Infection.**
- Clients infected with TB are provided with drug therapy to prevent the development of active disease. *(Adapted from Canadian Tuberculosis Standards, 2000)*
- Isoniazid and Rifampin administered twice weekly are the drugs routinely used for prophylaxis in Saskatchewan*.
- In Saskatchewan, infected children age 15 and under are prescribed DOP. Clients older than 15 are offered DOP on an individual case basis.
- Ingestion of all doses of chemoprophylaxis is directly observed.
  *(See page 29 - Rationale for DOT program)*

**NOTE:**
*The steps in a DOP Program are identical to DOT.*

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*See Canadian Tuberculosis Standard 2000, page 86.*
8.2.6 Medication Record:

- This is a legal document.
- Must be objective, accurate and honest (verbal reports are not acceptable).
- Reviewed monthly by TB Control to determine compliance (if and when drugs taken).
- If doses are missed, they may be added at the end of treatment.
- For instructions on completion of Medication Records see sample Medication Record Sheet. *(see Appendix J, page 79)*
- Please have all medication records available at the mobile clinics to review up to date compliance.
- Inform TB Control as soon as you know a client is away or moving. Do NOT send medications with the client.
- Do NOT borrow medications from other clients’ supply as it will:
  - Leave that client short.
  - Disrupt amounts that TB Control knows have been sent.
  - Affect the client’s total compliance audit
- Notify TB Control immediately if clients are NOT TOLERATING their medications.
- Start a new record for:
  - New supply each month.
  - Changes made to the schedule for administration of medication.
  - Dose change.
- Prior to or on the new start date of the medication:
  - Fax (where applicable) or mail medication records for the previous month.
  - Return all previous months, unused drugs and empty packaging.
  - Start a new medication record which reflects the date the new supply was received, number of doses and the signature of the worker and nurse acknowledging this.
- In order to assist TB Control to better audit the return of the drug packaging, keep all the empty and full unit dose drug packages together in the same bag for that client rather than placing individual packages/syringes/bottles loose in a box.
8.2.7 Compliance:

Refers to the degree to which the prescribed medication regime is adhered. The number of doses taken divided by the number of doses prescribed determines this.

Missed doses ARE NOT A REFLECTION of the TBPW’s or Nurse’s efforts when the client is not available to take them.

Challenges with TB client compliance:

1. We cannot predict who will/will not be compliant.
2. Compliance is not related to education, socioeconomic status, race, gender, etc.
3. TB treatment is lengthy, and compliance decreases as treatment length increases.
4. Problems increase as the number of drugs increase.
5. Clients may feel well, or be in denial and not perceive the need to take medication.

NOTE: *If the client is non-compliant the treatment plan will be reviewed by the Medication Delivery Team (TB consultants, CHNs, TB nurses, HCW involved with Client).*

Improving Compliance in Conjunction with a Directly Observed Program:

- Developing relationships with the client in time develops a sense of trust.
- Indulge and accommodate.
- Incentives are available. *(contact your First Nations TB Nurse to see what is available)*

Client Information:

Health Care workers must be sensitive to client needs and beliefs, which may affect compliance. Clients may think that a tuberculin skin test reaction means active disease. They may relate treatment to the days of the sanatoria when people were removed from their home and community for months to years and many died away in hospital. The stigma attached to TB may lead to fear of being rejected and ostracized by family, work and community, which may give rise to feelings of isolation and depression.

Clients need reassurance, support and accurate information about TB. As well, they must trust that confidentiality will be maintained.

Special Problems in Compliance:

Treatment of TB is long-term; it would be unusual not to encounter some problems along the way to completion! Sometimes problems relate to the medications; sometimes the biggest problem is just locating your client! In any event, a good relationship with the client and family is essential, and can be the most important factor when problems arise. If you have developed a supportive relationship, based on caring and trust, it is much easier to work with the client to find solutions to problems.
Some tips for starting out on the right foot:

- Use daily period of treatment to get to know the client and family.
- Select time of day you visit to suit the client’s schedule - if the client doesn’t get up until noon, don’t wake them up at 9:00 a.m.
- Maintaining confidentiality is critical. TB still causes shame for many clients.
- Clients are usually anxious at the beginning of treatment -- they may worry about dying, about infecting their family, etc. Take time to answer questions, provide information about TB, and offer support and reassurance.

**Adults:** Problems often relate to side effects, and need to be dealt with before they cause further problems -- such as avoidance and non-compliance, relapse, or drug resistance.

**Nausea/Vomiting:**

- Question clients frequently about this because they may not tell you unless you ask.
- Be aware that they may not admit it even if you ask.
- Watch for weight loss: most clients start to regain lost weight as TB resolves -- weight loss during course of treatment could be a sign of nausea and vomiting.
- Do good assessments: when are medications taken? When is vomiting occurring? Are the medications taken on an empty stomach? Drinking alcohol?
- Nausea/Vomiting sometimes abates with tolerance to medications.
- Can be a sign of drug-induced hepatitis, especially with abdominal pain. Doctor may order liver enzymes.
- May need to count dose as missed, depending on time interval between medications/vomiting.
- A big concern is relapse/drug resistance: Monitor for return of symptoms, repeat chest x-rays, obtain sputum’s.

**What can you do?**

1. Report any complaints of nausea/vomiting and record under “comments” on TB medication record.
2. Try giving medications at mealtime or with food.
3. Gravol - with medications or 30-60 minutes before meals.
4. Stemetil P.O.
5. Try giving medications in late afternoon or evening -- some clients tolerate this better.
6. Changes to treatment plan may have to be made *.

**Fatigue:**

- Fairly common, not usually severe.
- Can be a problem if interfering with client’s work/school.

**What can you do?**

1. Adjust time of day medications are given to suit the client’s schedule.
2. An evening dose may be necessary if fatigue is severe and interfering with daytime activities.

*NOTE: All changes to treatment regime must be made by the Drug Delivery Team*
Difficulty swallowing pills:
- Can be a significant problem - some clients experience nausea and gagging or vomiting.
- INH tablets taste bitter, more difficult to swallow than Rifampin capsules.

What can you do?
1. Can give medications in pudding, applesauce, etc.
2. Give with juice/milk/snack/Coke.
3. INH can be crushed, Rifampin caps can be taken apart to put in food (but the powder is awfully messy!).
4. Dose can be given in liquid form. *
   An adult dose is:
   - Rifampin - 24 ml
   - INH - 90 ml
5. Give client lots of time to take medications, one at a time with a break after each one if necessary.

Children: Problems are not usually related to side effects. The problem is getting them to take it! Difficulties with infants and children vary, depending on their stage of growth and development. In addition, they change over the long course of treatment, and problems can change with them.

Infants/Toddlers:
- “Fear of Strangers” - problem is usually at the beginning of treatment.
- Problem is not necessarily with taste of medications but with unfamiliarity with medication.
- Take time - develop a relationship with infant and family.
- Expect infant to spit medications out - it’s natural.
- Learn infant’s routine.

What can you do?
1. Select the best time of day for infant - Avoid nap time, or just after bottle or meals, when they are full.
2. Small doses of liquid medications can be mixed in baby food; larger doses (i.e. the INH) may alter the taste of the baby food too much.
3. Try giving liquid medication on spoon instead of in a syringe.
4. Ask for INH in tablet form, crush and give in food.
5. If giving liquid medications, give in small amounts as they are less likely to spit it out.
6. No bottles please! Mixing liquid medications in a bottle of formula means you have to stay until the infant finishes it all.
7. Incentives may be useful with older toddlers.
9. Last resort -- football hold, pinch nose, cheeks.

*NOTE: All changes to treatment regime must be made by the Drug Delivery Team
Younger children:
- May behave better at the beginning of treatment because you are a stranger and they like the attention -- they can become difficult after the first few months, once the novelty has worn off.
- “Control” is a big issue at this stage.

What can you do?
1. INH liquid may be too much -- try crushed tablets in food.
2. Give choices -- medication cup, syringe, spoon, favorite snack.
3. Let them take medication themselves if trustworthy -- they like squirting the syringe into their mouth.
4. Incentives (i.e. stickers, treats, etc.)
5. Alternate incentives to avoid boredom.

Older children:
- Can be most difficult age group.
- May also be better at beginning of treatment, and then get difficult.
- Embarrassment can be a problem.

What can you do?
1. Let them choose liquid or tablets/capsules.
2. Tablets can be given in food.
3. Give medications with milk/juice/Coke.
4. Incentives.
5. Reasoning/Rewards.
6. If giving medications at school, be discreet.

NOTE: If child vomits or spits up first medication -- Don’t give second medication! If you give the second medication, you are essentially giving single-drug treatment.

In the instance, where the client receives medications at the clinic or is not available to receive the medication, the health care worker needs to investigate. A visit also needs to be made if a clinical appointment is missed.

Please contact TB Control if difficulties with medication administration are causing serious problems and interfering with compliance.
8.2.8 Drug Resistance:

Clients whose initial culture show sensitive bacilli and develop resistance during treatment have **acquired resistance**. Acquired resistance results from taking fewer than two drugs to which the bacilli are sensitive. These clients are frequently infectious; 45% of clients with drug resistance from 1986-2001 were infectious: 81% with acquired resistance were infectious. They spread infections to susceptible contacts. More than one of these contacts subsequently developed TB. The first culture of these clients shows resistance. This is primary resistance. Seventy percent of clients with drug resistance have primary resistance and 30% have acquired resistance. In any population of bacilli, one in one hundred thousand to one in a million is resistant to one drug. Therefore TB is always treated with more than one drug.

Once someone develops multiple drug resistance, treatment with the available TB drugs may no longer be effective. That is a tragedy, because drug resistance is preventable. In order to prevent drug resistance, clients and health care workers must understand how it develops.

DOT is the most effective method to prevent resistance. In 1986-87, prior to DOT, 26% of clients had acquired drug resistance. In 1994-95, 4 years following DOT, 7% had acquired resistance. In 2000, 3% had acquired resistance.
9. SCREENING PROGRAMS FOR TUBERCULOSIS

9.1 General Screening Programs:

9.1.1 Routine Tuberculin Testing in Childhood:
Tuberculin Test at:
- 2 years of age. **
- Kindergarten.
- Grade 2.
- Grade 4.
- Grade 6.

** Children who have not been screened at age 2 should receive one screen before kindergarten.

NOTE:

Applies to on-reserve children only.
See Appendix H page 77, for survey forms to be used.

Process:
- Invite to Child Health Clinic or special clinic for TBN.
- Contact parents; explain process, set up appointments.
- Mantoux test (consent taken if not apparent on child’s immunization record).
- Read 48 hours later - record results on Immunization Record and TBN Screening form.
- Send results to TB Control Saskatoon.
- CHN must inform parents of significant results and proposed follow-up.

Interpretation

\[ \geq 10 \text{mm} = \text{significant and should be referred to TB Control for assessment.} \]

9.1.2 Other Individuals:
- Skin testing may be done at any age if there is a suspicion of TB provided the general contraindications to TB Skin testing are noted.
- Results must be forwarded to TB Control Registry in Saskatoon.
- If follow up is required, TB Control will contact the client and the nurse/institution that administered the test.

9.1.3 Immigration:
Individuals newly arrived in Canada are placed under surveillance for TB by Immigration Canada because of a suspicion of TB, if:
- Previous history.
- Abnormal chest x-ray compatible with TB.

Immigration notifies Saskatchewan TB Control of the newly arrived individual in Saskatchewan. This includes name and address.
TB Control contacts the individual to make arrangements for clinical assessment.

Clinic Visit:

- Clinical assessment.
- Chest x-ray and/or other appropriate x-rays.
- Skin test if no record of previous test.
- Specimen collection - at least one, preferably three.
- Obtain records and x-rays from Immigration Canada.

The notification procedure by Immigration Canada changed in November 1994. The surveillance notification is generated by the overseas Canadian Immigration Center (CIC). This is sent directly to the province. CIC telephone and fax number is on the form. This is the corresponding center for records and x-rays.

If active TB is established, treat with appropriate regimen assuming drug resistance applicable to the country of origin.

If TB free or inactive TB, begin prophylaxis if appropriate (see chapter on Latent TB Infection Treatment) Follow-up annually for 3 years, from time of entry, if prophylaxis is not undertaken.

9.2 Community Surveys:

Consist of:
1. Tuberculin skin testing.
2. Sputum collection.
3. Chest x-rays, when required.

NOTE: Conducted under advisement of TB Control, Saskatchewan Health, FNIHB, NITHA, Central and South Zones. Criteria for these surveys are available from TB Nurse Coordinators TB Control, Saskatoon, FNIHB, Regina or TB Nurses NITHA, Central and South Zones.

Process:
After a decision has been made to undertake a survey, the following is initiated:

- Discuss type of survey (i.e., blitz or house-to-house) with community members (Health Staff, Band, etc.).
- Set-up survey plan.
- Obtain lists of participants' names; compile a survey list and research.
- Arrange for nursing or other help as required.
- Arrange for X-ray services when required either through contract or local services if available.
- Co-ordinate and participate in testing.
- Document all findings (hard copy and computer spreadsheet as applicable).
- Results to TB Control Saskatoon and inform CHN.
- Collaborate with CHN, etc. for follow-up.
9.3 Institutions:

Include:

9.3.1 Schools.
9.3.2 Long term care facilities.
9.3.3 Hospitals.
9.3.4 Correctional Centers.

9.3.1 School Screening:

Purpose:

To locate school children who have converted to a significant Tuberculin reaction so that prophylactic treatment can be provided to them.

The annual school screening involves skin testing of children living on reserve:
- Kindergarten.
- Grades 2, 4 & 6.

The program may be extended depending as directed by TB Control. Screening may be done at schools on reserve or at clinic for students attending school off reserve.

For further information contact TB nurses overseeing the TB Program in your area.

Process:

- Contact school & TB Nurses to set dates.
- Acquire school lists and research current TBN status. (use TB School survey forms)
- Obtain informed written consents from parents. (use your own agency's consent forms)
- Do pre-TBN teaching with students.
- Read and record all results in 48-72 hours.
- Send all TBN results to TB Control Registry, Saskatoon.
- Inform appropriate HCW and parents of significant results and proposed follow-up.

9.3.2 Long-Term Care Facilities:

Residents:

On Admission:
1. Tuberculin Skin Test:
   - Within 30 days if no previous record of skin test.
   - Re-test within two weeks if reaction less than 10 mm (to identify booster responders).
2. Chest x-ray to be done for TB, if not obtained within 90 days of admission.
3. Sputum for AFB Smear and Culture if coughing for more than one month. Obtain gastric washing if sputum not obtainable.
Annual Routine Surveillance:

1. Tuberculin Skin Test: *
   - **No Routine yearly skin test**
   - Test at any time if he/she:
     - has been exposed to infectious TB
     - develops symptoms of TB
     - develops pneumonia which does not responsive to antibiotics

2. Chest x-ray:
   - Cough or sputum for more than one month.
   - Pneumonia (even if presumed to be bacterial).
   - Unexplained fever for greater than a week.
   - Tuberculin conversion.

3. Sputum for AFB Smear and Culture if coughing for more than one month.
   Obtain gastric washing if sputum not available.

Employees:

Upon Employment: Test all new employees

1. Tuberculin Skin Test:
   - Within 30 days if no previous record of skin test.
   - Re-test within two weeks if reaction less than 10 mm when over age 50 to identify booster responders. *

2. Chest X-Ray. (If not obtained within 90 days):
   - Skin test reaction greater than or equal to 10 mm.
   - Cough or sputum as above.
   - Unexplained fever greater than one week.

3. Sputum for AFB Smear and Culture if coughing for greater than a month.
   Obtain gastric washing if sputum not available.

Annual Routine Surveillance:

1. Tuberculin Skin Test: *
   - Yearly skin test for reactors less than 10 mm.

2. Chest X-Ray:
   - Cough or sputum for more than one month.
   - Unexplained fever more than one week.
   - Tuberculin conversion.

3. Sputum for AFB Smear and Culture if coughing for more than one month.
   Obtain gastric washing if sputum not available.

* See Appendix M, page 84 for rationale for LTC surveillance
Management

Refer to the attending physician or TB consultant for assessment and management of those residents and staff whom:

- Have a skin test reaction equal to or greater than 10 mm and have not previously been tested.
- Recently infected, i.e., a tuberculin conversion.
- Cough for more than one month.
- Unexplained fever for more than one week.
- Antibiotic unresponsive pneumonia.

9.3.3 Hospitals:

- Will have own policies and procedures for TB.
- See Appendix for sample Infection Control guidelines.
- For details: contact appropriate Health District Hospital Infection Control Officer.

9.3.4 Correctional Centers:

Federal *:

Correctional Services Canada has developed and adopted a Tuberculosis Prevention and Control Program that applies to all federal employees at risk. For more information contact the Occupational and Environmental Health Nurse, Health Canada, 1911 Broad St. Regina, Sask., S4P 1Y1. Phone: 306-780-6448

Provincial:

Saskatchewan Corrections completed a TB infection prevalence survey of inmates in 1996. Based on this survey, it is reviewing a Tuberculosis Prevention and Management Policy within a Communicable Disease Risk Reduction Strategy.

For more information contact:
Senior Standards and Inspection Officer, 7th floor, 1874 Scarth St., Regina, Phone: 306-787-9076, Fax: 306-787-8084

*For information on inmate surveillance see:

TB Control in Residential Settings, Correctional Facilities, Canada Communicable Disease Report, Health Canada, 1996, 22S1:33-34
10. PREVENTION

10.1 BCG Vaccination:

Bacille Calmette-Guerin vaccine (BCG) is a suspension of a live attenuated strain of Mycobacterium bovis. Vaccination may afford protection against the spread of Tuberculosis, and therefore may reduce the incidence of tuberculous meningitis and disseminated (miliary) TB.

Newborns:
- At present it is FNIHB policy to offer BCG vaccination to newborns up to 6 weeks of age residing on reserve.

NOTE: The vaccine can be offered 24 hours after birth.

Contraindications:
- Newborns suspected to be infected with HIV or who are immunocompromised.
- Extensive areas of broken skin.

Storage of BCG Vaccine:
- Freeze-dried BCG vaccine is supplied in multi-dose vials, together with bottles of sterile diluent.
- The vials and diluent should be kept refrigerated at 2-8º C and at no time be exposed to sunlight.
- Each vial must be used within 8 hours after reconstitution.

10.1.1 BCG Vaccination Procedure:
- Obtain an informed consent.
- Prepare the 0.05ml BCG vaccine in a tuberculin syringe using standard nursing procedure.
- Administer the dose intradermally into the upper deltoid area of the left arm.

Documentation and follow-up to BCG:
- Record the date given, dose, site and route of administration, as well as the lot number of the vaccine on client Health Record.
- Complete BCG Report form and forward a copy to TB Control Registry, Saskatoon.
- Reinforce teaching to parent/guardian and advise to contact clinic if concerned about reaction/site or infant’s health. Educate about the appropriate management of mild reactions.
Normal Reaction to BCG: (see Figure 7, page 44)

- A small red, pimple-like eruption will appear within 2-4 weeks. It will likely crust over and weep in a few days.
- Healing may take 1-3 months leaving a small scar.

After Care of BCG:

- Once the BCG site develops into a sore or blister, keep the area dry. When bathing the child, wash around the BCG site.
- Do not put a Band-Aid or tape over the BCG site.
- If the site is draining, pin a clean gauze inside the child’s sleeve to absorb the drainage. Change often to prevent infection.
- Do not use ointments or creams on BCG site.
- Wearing long sleeves will prevent scratching.
- Do not incise and drain BCG site.
- Contact the nurse if the child develops a lump under their arm.

Adverse Reactions:

Adverse reactions are frequently related to improper technique in administration, such as, improper dilution or injecting too deeply. Most reactions are mild and occur in less than 2% of the infants:
- Skin ulceration for more than three months.
- Regional Lymphadenitis.
- Lupoid reactions and Keloid formations.
- Suppurative adenitis (frequency 1:10,000).
- Disseminated BCG infection (frequency less than 1:1,000,000) which may result in subsequent mortality. (Canadian Tuberculosis Standards, 2000, page 226)

Reporting adverse reactions to BCG:

Moderate and severe reactions are reported by the nurse/physician on the “Report of a Vaccine-Associated Adverse Event” Form (See Appendix I, page 78).
Figure 7: Photograph of Normal Reaction

After four weeks

After six weeks

After three months

After twelve months

Figure 8: BCG Report Form

<table>
<thead>
<tr>
<th>Saskatchewan Laboratory and Disease Control Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BCG Report Form</strong></td>
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<tr>
<td><strong>Please print</strong></td>
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<td><strong>Middle</strong></td>
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<td><strong>Sex</strong></td>
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<tr>
<td><strong>M</strong></td>
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<td><strong>F</strong></td>
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<tr>
<td><strong>Birth date (Y/M/D)</strong></td>
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<tr>
<td><strong>PHN No. (SKSP)</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Address</strong></td>
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<td></td>
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<tr>
<td><strong>Next of kin or close friend</strong></td>
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<tr>
<td></td>
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<tr>
<td><strong>BCG Date (Y/M/D)</strong></td>
</tr>
<tr>
<td><strong>BCG Lot #</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Mail top copy to:</strong></td>
</tr>
<tr>
<td>TB Registry</td>
</tr>
<tr>
<td>5th Floor Ellis Hall</td>
</tr>
<tr>
<td>Royal University Hospital</td>
</tr>
<tr>
<td>Saskatoon, Sask.</td>
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<tr>
<td>S7N 0X0</td>
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<tr>
<td><strong>Health</strong></td>
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<tr>
<td>7692</td>
</tr>
</tbody>
</table>
10.1.2 Mantoux Skin Testing after BCG Vaccination:

There is no reliable method of distinguishing TBN reaction caused by vaccination with BCG from those caused by M. Tuberculosis infections. Therefore it is prudent to consider significant reactions in BCG vaccinated persons as indicating infection with M. Tuberculosis, especially among persons from areas with a high prevalence of TB.

Reasons for “not assuming“ that a reaction to TBN is due to BCG vaccination:

- TBN skin test conversion rates after BCG vaccination are less than 100%.
- The reaction size following vaccination is often less than 10 mm.
- TBN reaction tends to wane after vaccination.
- Because BCG vaccinated persons tend to come from areas where infection frequently occurs, it is important that previously vaccinated persons with significant reactions be evaluated for presence of disease and be managed accordingly.

In other words, since BCG is given to persons at risk for infection with M. Tuberculosis, the probability of infection with TB is high and therefore the significant TBN skin test in BCG vaccinated persons should be considered as infection with M. Tuberculosis. *

Commonly Asked Questions:

1. Does BCG vaccination change the TBN skin test?

Yes and No.

The results of a cross sectional skin test screen of Registered Indian children in Northern Saskatchewan aged two months to two years who were vaccinated at birth, showed that 55% had a reaction less than 5 mm.

The results of a longitudinal skin test screen of Saskatchewan First Nation's newborn, who were vaccinated, showed that 18% had a reaction of greater than 10 mm at one year and 6% had a reaction greater than 10mm at 5 years. **

2. Does a post BCG vaccination skin test that was significant after vaccination, remain significant for life?

No.

In the results of First Nations newborn above, only 6% at 5 years of the 18% at 1 year had a reaction of greater than 10mm.

**Abstract Chest - 120: 187S, 2001
The results of a longitudinal skin test screen of Lebanese school children who were vaccinated in school showed that 75% had a reaction of greater than 10 mm at one year, and 39% at three years after vaccination. *

3. Does BCG vaccination prevent TB?

It does not provide 100% protection.

The results of ten major field trials from 1933 to 1968 ranged from 80% to 0% protection.

There is evidence that BCG prevents TB Meningitis and Miliary TB, which are rare but dangerous sequelae to TB.

10.2 Treatment of Latent TB Infection (Prophylactic Treatment):

Prophylactic treatment is the provision of drug therapy to clients infected with the tuberculosis germ, to prevent the development of active disease. For details refer to Drug Treatment, Directly Observed Prophylaxis, Section 8.2.5.

Prophylactic treatment is recommended according to the **Canadian Tuberculosis Standards 2000**, for TB infection in high risk groups:

1. TBN reaction equal to or greater than 5mm in:
   - Recent contacts.
   - Chest x-ray scars without previous treatment.
   - HIV/AIDS.

2. TBN reaction equal to or greater than 10mm in:
   - Converters.
   - High risk groups:
     - Foreign born.
     - Aboriginal.
     - Health care workers.
     - Resident in communal area.
     - Immunosuppression.

Treatment of Latent TB Infection is not recommended according to the **Canadian Tuberculosis Standards 2000** for the following individuals who:

- Are older than 35 years with no other risk factors because the risk of INH outweighs the risk of TB.
- Have abnormal liver function.
- Have a previous adverse reaction to INH.
- Are pregnant.
- Are contact to known INH resistant TB.

**Note:**

*All individuals are informed of the relative risks and benefits of treatment in contrast with the risks of disease so that they can make an informed decision about preventive therapy for TB.*
11. CONTACT TRACING

Purpose is to find:
- Infected people.
- People with active disease.
- People with infectious disease.

Contact tracing is limited to two categories of clients who have:

11.1 Infectious Tuberculosis.
11.2 Primary Tuberculosis.

11.1 Infectious Tuberculosis (Pulmonary Smear Positive):

- These clients are transmitters of infection. Any person who has breathed the same indoor air as the client (for a total of ten hours in the past month), is potentially infected. The object of Contact Tracing is to find infected contacts.

Contact Tracing is focused on:
- Preschool children because they are most susceptible to infection.
- The contacts of the client during the 30 days before diagnosis.

- The skin test is done initially on all contacts, except those with a record of a significant reaction. Repeat in six weeks on those whose first test was non-significant. This is to find contacts that were infected just before the diagnosis. If the first test is not done until six weeks after diagnosis, then a second test is not required.

- Children are a priority in each category and should be skin-tested urgently. Refer for immediate examination if they have fever, cough, or cervical adenopathy, even if tuberculin is less than 5 mm.

- In order of decreasing priority:
  - Household contact 0-5 years.
  - Household contact 6-15 years.
  - Household contact - Other.
  - Outside daily contact.
  - Outside occasional contact.

Note:
While children living in the household are the highest priority for contact tracing, all other household contacts who have breathed the same air as the contact case for at least 10 hours in the past month are also a high priority for contact tracing.
Infectious TB

Focus on:
1. Pre-school children.
2. Any person who has breathed same indoor air.
3. Contacts of client 30 days before diagnosis.

* if non-significant TBN within 1st 6 weeks of date of diagnosis
11.2 Primary Tuberculosis:

- These clients were recently infected. Any person who has breathed the same indoor air (for a total of 10 hours within the past month) as the client is a potential source. The object of the contact trace (source trace) is to find the infectious source.

- The contact trace is focused on:
  1. Contacts age 15 years and older.
  2. The contacts of the client during the 30 days before diagnosis.

- The skin test is not repeated in six weeks if the first test was not significant because these contacts are not the source, i.e. they did not have tuberculosis at the time of contact.

- When the source is known, the contact skin testing trace is not required.

- When the source is found, the contact skin testing trace is discontinued.

**NOTE:**

1. *Usually seen in children who may look and feel well.*

2. *Ninety percent of infections (90%) never go on to active TB.*

3. *About 10% progress to disease, five percent (5%) develop TB within two years, and five percent (5%) will develop TB later in life.*

4. *Children are at greater risk to develop TB, especially in high incidence populations. If under age five, assume they are infected if they’ve been exposed. They should be tested urgently and examined whether they have a significant TBN reaction or not.*

5. *Commence drug treatment immediately. Skin test 6 weeks later-if reaction is not significant treatment may be discontinued.*
Primary Tuberculosis

---

Identify Source

Focus on:

- Age 15 years and older

Contacts during the 30 days before Diagnosis

Skin Test

- Significant
  - Client into System

- Non-significant
  - Do Not Repeat Skin Test

---

Figure 10: Contact (Source) Tracing Flow Sheet - Primary TB
11.3 Contact Tracing Procedure:

Developing a Contact List:

- Concentrate on contacts with the client in the 30 days before the diagnosis.
- It is useful to list contacts according to who has had the greatest to the least amount of exposure time.
- Household members (who live in the house) have common exposure and high risk of transmission:
  - How many members?
  - Family (mother, father, brother, sisters, grandparents).
  - Baby sitters.
  - Others.

- Immediate family (who do not live in the house):
  - How many members?
  - Include brothers and sisters, parents (children), grandparents (grandchildren).

- Others (Focus on repeated exposure):
  - Family or friends who had/have tuberculosis.
  - Anyone who is/was active TB in the community - any contact with them.
  - Visitors.
  - Focus on first generation biological relatives: aunts, uncles, cousins etc.
  - School or work.
  - Travel - taxi, car, bus, school bus (riding in same vehicle repeatedly).
  - Store, restaurants, bars.
  - Hospitals, Special Care Homes.
  - Penitentiary.
  - Others that present themselves later and were not on the list.
  - Relations by marriage - aunts, uncles, cousins, nieces, nephews.
Guidelines to Assist Completion of a Contact List:

- Try to establish if client was a contact to an infectious source(s).
- Make first visit brief (about ½ hour).
- Interview client a couple days later - may have remembered other names.
- Interview other household family members for additional names.
- Focus on high priorities - different for primary vs. pulmonary active smear positive cases.
- Once contacts are identified, skin testing & examination can take place even BEFORE the list is completed. It is not necessary that all the testing be done before the list is sent into TB Control.
- Contacts aged fifteen years or younger to an infectious case - test immediately and forward significant results to TB Control so they can be seen by the local doctor or TB Clinic as soon as possible.
- Once all names have been listed and all the information on form is completed, send the list to the TB Control nurse covering your area. This needs to be done within 2-3 weeks of when you were notified to do contact tracing.
- Contacts should be seen within 30 days of when contact tracing was requested.
- Collect sputum on anyone who is coughing.
- Contacts not initially listed may present themselves - add them to the list.
- TB Control will notify you of any additional follow up needed once the contact list is received.

Contact Information Sheet:
- please refer to Appendix K, page 81

Contact Information Form:
- please refer to Appendix L, page 82 & 83
APPENDIX A

HIV/AIDS AND TB

Correlation between HIV/AIDS and TB:

HIV infection results in a gradual decrease in the number of CD4 lymphocytes that are important for immunological protection against TB. The normal count is about 1000/mm². Pyogenic and fungal infections appear with CD4 counts of less than 400 (about 5 years after infection) and tuberculosis with counts of less than 200 (about 8 years). Infections with M. Avium and PCP appear when the counts are less than 150 (about 9 years). The frequency of TB in HIV negative persons is about 10% per lifetime. The frequency of TB in HIV positive persons is about 8% per year. Since the life expectancy of persons with HIV is much less than for persons without HIV/AIDS, the lifetime risk of TB is difficult to compare with HIV negative persons.

The presentation of TB in persons with HIV/AIDS is similar to primary TB. It is frequently extra pulmonary (38%) and frequently skin test negative (63%). TB is an AIDS defining illness, which means that when a person with HIV infection develops TB, that person then has AIDS.

For more information regarding clients with HIV/AIDS, call the TB Control Program.

References:


2. HIV and TB- TB Prevention for HIV Affected Communities. This pamphlet is published by the Canadian AIDS Society.


4. Journal of Infectious Disease. 1992; 165-352
APPENDIX B

CONTACT SURVEILLANCE

Objective:

The Objective of Contact Surveillance, as outlined by the American Thoracic Society and adopted by Saskatchewan TB control is:

To identify and examine within 30 days, infected contacts of smear positive tuberculosis or primary tuberculosis. The following procedure is designed to help achieve the objective of 30 days.

LINES OF COMMUNICATION FOR CONTACT SURVEILLANCE

1. Lines of Communication for Health Districts:

Laboratory: Identifies the positive sputum and notifies the TB Registry, the same day

TB Registry: Notifies the TB Consultant and/or TB Control nurse for the appropriate area.

Tuberculosis Consultant:

- Notifies the attending physician by telephone, within 24 hours and outlines the treatment plan.
- Follows-up in writing within 24 hours, to the attending physician to confirm the telephone conversation and treatment plan and forwards a copy to the Medical Health Officer.
- Informs MHO by phone in special circumstances that warrant further public health action, if there are potentially large numbers of contacts (e.g. workplace situations, residential schools, institutions etc.), or if there has been extensive travel by the index case.

Tuberculosis Control Nurse:

- Notifies the Health District Contact (HDC) by phone within 24 hours after the attending physician has been notified.
- Sends a letter outlining details which are available and to confirm the telephone conversation.
- Asks the HDC to develop a contact list if one is not available. The approach taken will vary with the diagnosis of the index case. For Infectious Pulmonary TB, the aim is to find the infected contacts; Primary TB is non-infectious and the aim is to look for a source case. The TB Control Nurse will advise of the plan. In some situations, retesting in 6 weeks may be requested.
Tuberculosis Control Nurse con’t:

- Sends the contact list, if available, to the HDC and outlines the contact tracing required.
- The PHN begins skin testing as soon as contact is identified.
- The HDC will send the Contact Information Form and results of any completed TBNs on the Tuberculin Report form to the TB Control Nurse.
- This information should reach TB Control not later than 21 days after the initial telephone conversation.
- If additional contacts are identified after the Contact Information Form has been submitted, the HDC will instruct the PHN to complete a Tuberculin Report Form with the TBN test results and/or past TBN test information if available.
- Contacts that require follow-up will be clinically examined by a TB Consultant to determine the presence of active disease. The examination will be arranged through the attending physician and/or TB Control.
- If it is not possible for the client to be seen by a TB Consultant, the attending physician will be contacted by a TB Consultant to request an examination for TB (including a chest x-ray) and to forward the results to TB Control.
- Ion principle, it is preferable that the PHN do all the skin testing because:
  - A more consistent quality will be ensured.
  - A more efficient communication through established channels can be ensured. This is particularly important for the 30-day objective.
- In cases where TB Control wishes to request a change in the course of follow-up, they will contact the HDC or alternate who will relay the information to the PHN and request an unusual procedure in reference to a case.
- TB Control personnel will direct requests for special tuberculin testing to the MHO.
- PHN may become involved in assessing adherence to a medication regimen if she is already providing a service in that home or is going in for other purposes.

Health District Contact:

An individual identified within the Health District to be the prime contact person for that District by the TB Control Program:

- Receives the informational phone call from the TB Control Nurse, confirming a client with smear positive or primary tuberculosis.
- Notifies the District Nursing Supervisor of the index case and forwards the contact list to the PHN (if one is available) from the TB Control Nurse.
- Receives the list of contacts completed by the PHN.
- Forwards the completed list of contacts to the TB Control Nurse.
- Receives from the PHN the results of the skin tests done on the contacts.
- Forwards the skin test results to the TB Control Nurse.
- May be involved in other communication related to the TB Control Program.
- Forwards to the TB Control nurse any other communication from the Health District.
- Keeps the District Nursing Supervisor informed of ongoing events.

NOTE:

There is no need to complete all the contact tracing before beginning to make referrals to the local physician.
2. Lines of Communication in Northern Health Districts:

**Laboratory:** Identifies the positive sputum and notifies the TB Registry, the same day.

**TB Registry:** Notifies the TB Consultant and/or TB Control Nurse for the appropriate area.

**TB Consultant:**
- Notifies the attending physician by telephone within 24 hours and outlines treatment plan.
- Follows up in writing within 24 hours to confirm the telephone conversation and treatment plan.
- Sends a copy of the letter to the MHO, the CHN and the Regional Programs Medical Health Officer, if Registered Indian.
- Informs MHO by phone in special circumstances that warrant further public health action, if there are potentially large numbers of contacts (e.g., workplace situations, residential schools, institutions etc.), or if there has been extensive travel by the index case.

**The TB Control Nurse:**
- Notifies the CHN by telephone within 24 hours but only after the local physician has been notified.
- Follow up in writing to the CHN within 24 hours outlining the plan and the details which are available and to confirm the telephone conversation.
- Sends a copy of the letter to the Communicable Disease Control Nurse (CDCN), LaRonge, and if Registered Indian living on reserve, to the Contact Nurse in the appropriate Tribal Council and FNIHB Nurse.
- Asks the CHN to develop a contact list, carry out TBN testing, and refer selected contacts for clinical examination. The approach taken will vary with the diagnosis of the index case. For Infectious Pulmonary TB the aim is to find infected contacts; Primary TB is usually non-infectious and one looks for a source case. The TB Control Nurse will advise of the plan. In some situations, retesting in 6 weeks may be requested.

**The Communicable Disease Control Nurse:**
- Contacts the CHN by telephone within one week of receipt of letter from the TB Control Nurse; provides information and assistance as required to ensure the plan is carried out appropriately and within target dates.
- Telephones the TB Control Nurse if there are difficulties in carrying out the plan as advised.
The Community Health Nurse:

- Prepares contact list using the Contact Information Form by interviewing index case and/or family, reviewing health records, and using information available from Community Health Worker and TB Registry.
- All contacts with greater than 10 hours shared indoor air, are listed. Special consideration is required for children, 5 years of age and under, even with less than 10 hours contact. This should be discussed with the CDC Nurse.
- Begins skin testing as soon as contacts are identified. Contacts that have readily available documentation of a previous tuberculin reaction of at least 10 mm or more of induration may be exempted from tuberculin testing.
- Previous BCG is not a contraindication to TBN testing. However, if records aren’t readily available, such as in a fly-in camp or at the end of a muddy road, all contacts are tested immediately unless they give a history of a previous large reaction.
- Communicates difficulties in achieving the target date to the CDCN, LaRonge.
- Completes TBN skin testing two weeks after initial telephone request from the TB Control Nurse.
- Refers the following contacts to the local physician or a TB Consultant for a clinical examination (this includes a chest x-ray):
  1. All contacts with tuberculin reactions equal to or greater than 5mm (if no previous record of TBN greater than 10mm).
  2. Children aged 0-5 years with TBN equal to or greater than 5mm.
  3. Children aged 0-5 years with TBN less than 5mm, if symptomatic (fever, cough, cervical adenopathy).
  4. All contacts with a cough longer than 1 month, including those who were excluded from TBN testing.

**NOTE:**

*There is no need to complete all the contact tracing before beginning to make referrals to the local physician.*

- Sends the Contact Information Form and the Tuberculin Report Forms by fax/mail to the TB Registry with copies to the local physician.
The Local Physician:

- Carries out the clinical examination.
- Records results of the clinical examination on the TB Contact Examination form.
- Sends the results of the clinical examination, and the chest X-ray to the TB Consultant.
- If chemoprophylaxis is urgent or if the contact is symptomatic, telephones the Tuberculosis Consultant for the area, as well as sending TB Contact Exam and chest x-ray. Chemoprophylaxis is actively promoted for children age 15 or less. If indicated in older contacts up to age 35, the individual needs a strong commitment to take it. This should be discussed with the TB Consultant for the area.

The Tuberculosis Consultant:

- Reviews clinical information sent by local physicians.
- Writes a letter regarding further follow-up and/or initiatives to start prophylaxis back to local physicians with copies of letter to CHN, MHO and Programs Medical Officer, if Registered Indian/Inuit.
- Ideally, sees each client started on chemoprophylaxis within one month of start date, or at the first consultant visit to the community.

Priorities:

- Household contacts 0-5 years.
- Household contact 6-15 years.
- Household contact - other.
- Outside daily contacts.
- Outside occasional contacts.

NOTE:

*Children aged 0-5 years are priority in each category - should be skin tested urgently. Refer for immediate examination if they have fever, cough, or cervical adenopathy, even if tuberculin is not significant (4mm or less). If TBN is significant (5 mm or greater), refer automatically.*

*Other factors may increase contact's risk, e.g. diabetes, leukemia, Hodgkin's Lymphoma, steroid or immunosuppressive therapy, post-gastrectomy, chronic hemodialysis contacts with symptoms. This information should be discussed with the local physician. This information is useful as it influences the priority listing of the individual with one of these disorders.*
3. **Lines of Communication in First Nations Communities:**

**Laboratory:** Identifies positive specimen and notifies the TB Control Registry the same day.

**TB Registry:** Notifies the TB Consultant and/or TB Control Nurse for the appropriate area.

**The Tuberculosis Consultant:**

- Notifies the attending physician by telephone within 24 hours and outlines the treatment plan. If the physician is unavailable, the CHN is notified.
- Follows up in writing within 24 hours to confirm the telephone conversation and treatment plan with copies of the letter to NITHA, South/Central MHO, District Health MHO, and the First Nations TB Nurse.
- Informs MHO by phone in special circumstances that warrant further public health action, if there are potentially large numbers of contacts (e.g., workplace situations, residential schools, institutions etc.), or if there has been extensive travel by the index case.

**The Tuberculosis Control Nurse:**

- Notifies the CHN by telephone within 24 hours after the local physician has been notified.
- Notifies the appropriate First Nations TB Coordinator/Nurse by telephone of patients starting treatment and the treatment plan
- Follow up in writing (letter/fax) within 24 hours to the CHN outlining the plan and details which are available and to confirm the telephone conversation. Copy of the letter to First Nations Coordinator/Nurse.
- Notifies the CHN by telephone of the treatment plan when the prescription has been written.
- Asks the CHN to develop a contact list, carry out tuberculin testing, and refer selected contacts for clinical examination. The approach taken will vary with the diagnosis of the index case. For Infectious Pulmonary TB the aim is to find infected contacts; Primary TB is non-infectious and the aim is to look for a source case. The TB Control Nurse will advise of the plan. In some situations, retesting in 6 weeks may be requested.
The First Nations TB Coordinator/Nurse:

- Contact CHN by phone within 2 days of receipt of letter from TB Control Nurse, provides information and assistance as required to ensure the plan is carried out appropriately and within target dates.
- Telephones the TB Control Nurse if there are difficulties in carrying out the plan as advised.

The Community Health Nurse:

- Prepares the contact list, using the Contact Information Form, by interviewing the index case and/or the family.
- Reviews health records, and uses information available from the Community Health Worker and TB Registry. All contacts with greater than 10 hours shared indoor air are listed. Special consideration is required for children 5 or less years of age, even with less than 10 hours contact.
- Begins skin testing as soon as contacts are identified. Contacts that have readily available documentation of previous tuberculin reactions of at least 10 mm or more of induration are exempt from tuberculin testing. Previous BCG is not a contraindication to tuberculin testing. However, if records aren’t readily available, such as a fly-in camp, all contacts are tested immediately unless they give a history of a previous large reaction.
- Communicates difficulties in achieving the target date to the TB Nurse or Nursing Supervisor.
- Completes tuberculin testing two weeks after initial telephone request from the TB Control Nurse.
- Fax a copy of the Contact Information Form, after Health Records have been reviewed, to the TB Control Nurse.
- In consultation with the TB Control Nurse, refers the following contacts to the local physician or a TB Consultant for a clinical examination (this includes a chest x-ray) of:
  1. All contacts with tuberculin reactions greater than 5mm (if no previous record of TBN greater than 10 mm)
  2. Children aged 0-5 years with TBN equal to or greater than 5mm
  3. Children aged 0-5 years with TBN less than 5mm, if symptomatic (fever, cough, cervical adenopathy)
  4. All contacts with cough greater than 1 month, including those who were excluded from TBN testing

**NOTE:**

*There is no need to complete all the contact tracing before beginning to make referrals to the local physician.*

- Send the Contact Information Form and the Tuberculin Report Forms by mail/fax to the TB Control Nurse.
The Local Physician:

- Carries out the clinical exam.
- Records information from the exam on the TB Contact Exam form and sends it with the chest x-ray to the TB Consultant (telephone the same day if TB is suspect).
- If need for chemotherapy is urgent or if contacts are symptomatic, telephones the Tuberculosis Consultant for the area, as well as sending TB Contact Exam and chest x-ray. Chemotherapy is actively promoted for children age 15 or less.
- If chemoprophylaxis is indicated in older contacts up to age 35, the individual needs a strong commitment to take it. This should be discussed with the Tuberculosis Consultant for the area.

The Tuberculosis Consultant:

- Reviews clinical information sent by local physicians.
- Sends a letter regarding further follow up and/or initiatives to start prophylaxis to local physicians with copies to CHN, MHO, and Programs Medical Officer.
- Ideally, sees each client on chemoprophylaxis within one month of start date, or at the first consultant visit to the community.

Priorities:

- Household contacts 0-5 years.
- Household contact 6-15 years.
- Household contact - other.
- Outside daily contacts.
- Outside occasional contacts.
- Children aged 0-5 years are priority in each category and should be skin tested urgently.

NOTE:

Children aged 0-5 years are priority in each category - should be skin tested urgently. Refer for immediate examination if they have fever, cough, or cervical adenopathy, even if tuberculin is not significant (4mm or less). If TBN is significant (5 mm or greater), refer automatically.

Other factors may increase contact's risk, e.g. diabetes, leukemia, Hodgkin's Lymphoma, steroid or immunosuppressive therapy, post-gastrectomy, chronic hemodialysis, contacts with symptoms. This information should be discussed with the local physician. This information is useful as it influences the priority listing of the individual with one of these disorders.
Tuberculosis in Saskatchewan: Initial Diagnosis & Treatment Process

CLIENT Presents

PRIMARY CARE NURSE Screening

Family Physician

Diagnosis or Suspicion of TB

Laboratory Testing
Sputum, Gastric Washings,

Test NEGATIVE

Test POSITIVE

Await results or Further assessment

TB CONSULTANT
Discuss initiating treatment, await further tests, etc.

Decision to treat

TB CONSULTANT

1. ADVISES MD REGARDING TREATMENT/FOLLOWUP
2. INFORMS MHO (BY LETTER OR FAX)
3. INFORMS TB CONTROL NURSE TO INITIATE CONTACT TRACING (IF NEEDED) AND CONTACT APPROPRIATE FIELD NURSE OF MEDICATION STARTS.
4. MAKES ARRANGEMENTS FOR MEDICATION TO BE SENT
5. NOTIFIES (BY LETTER)
   • MD
   • PHN/CHN/PCN
   • DISTRICT MHO/CDCN
   • FIRST NATIONS' OR FNIHB MHO (FOR ALL REGISTERED INDIAN CLIENTS)

TB MEDICATION

REGULAR REVIEW BY FAMILY DOCTOR

DOT
TB WORKERS OR PHN/CHN/PCN

TB CONSULTANT VISITS
LOCAL DOCTOR

TB CONSULTANT

TB CONTROL NURSE

Health District or First Nations CDC/TB Coordinator/Nurse
(Involvement of HD CD Nurse/Nurse Manager varies with district)

CO-ORDINATE CONTACT TRACING

COMMUNITY NURSE
- CONTACT INTERVIEWS
- SKIN TESTING

RESULTS TO TB CONTROL NURSE

CONVERSION OR NEW REACTION

APPOINTMENT WITH TB CONSULTANT

SEE FAMILY DOCTOR
- HISTORY
- EXAMINATION
- +/- CXR, SPUTUM,

DISEASE

HANDLE AS CASE

PHONE TB CONSULTANT TO INITIATE CHEMOPROPHYLAXIS

(TB CONTACT/INITIAL EXAM FORM)

INFECTION

INFORM TB CONSULTANT

MAIL INFORMATION TO TB CONSULTANT

ROLE OF TB CONSULTANT
(See flowchart on Next Page)
RESESVE DECISION ON PROPHALAXIS UNTIL SEEN AT NEXT CLINIC**

CONTACT TRACING PROCESS

TB CONSULTANT

RECOMMENDS CHEMOPROPHYLAXIS

DOES NOT RECOMMEND CHEMOPROPHYLAXIS

FOLLOW-UP AS REQUIRED

ADVISES FAMILY DOCTOR/NURSE INFORMS TB CONTROL NURSE ARRANGES TB CONSULTANT APPOINTMENT***

*** Each Client seen within first few months of treatment

Client Agrees to DOP

FOLLOW-UP AS REQUIRED

Client does NOT Agree to DOP

CLIENT SEES DOCTOR/NURSE FOR EDUCATION, MEDICATION AND FOLLOW-UP INCLUDING DISCUSSION OF PROPHYLAXIS

RECOMMENDS CHEMOPROPHYLAXIS

**Appointment made to see client at TB Clinic (P.A., Saskatchewan, Regina or Mobile Clinic)

*Appointment made to see client at TB Clinic (P.A., Saskatchewan, Regina or Mobile Clinic)

*** Each Client seen within first few months of treatment

COMPLIANCE INFORMATION RELAYED BACK TO TB CONSULTANT
Communication Flow to Public Health From TB Program

Lab/Pathology → New Cases → Review Cases → Contact Tracing → Treatment of Latent TB (Chemoprophylaxis)

**TB PROGRAM**

Fax to MHO/CDC
Consultation letter re: new cases

Mail copy of consultation letter to MD
To District MHO/CDC, NITHA MHO and FNIHB (if First Nations)

Phone for special circumstances:
- Compliance problem
- MDR-TB in community
- Contact tracing in special circumstances (school, workplaces, etc.)

**QUARTERLY REPORTS**
Line list by Health Districts of:
1. Active Cases
2. Cases on Treatment for Latent TB
   (Provide chronologically for quarterly and yearly cumulative)

**ANNUAL REPORT:**
- General
- Deaths
- Geographical distribution of New Cases
- Summary of Medical Services
- Case Breakdown, New Cases
- Transmission of Tuberculosis
- Treatment of Latent TB Program
- Outcome of Treatment of Latent TB
- Tuberculosis in Hospitals and Long Term Care Facilities
  
- Diagnosis
- Tuberculosis and HIV/AIDS
- Compliance
- Resistant Organisms
- BCG Program
- Program Audit
- Contact Surveillance

-66-
APPENDIX C

Hospital Infection Control for Pulmonary Tuberculosis

Recommendations for Sputum Smear Positive Cases:

- Isolation must be in a single bedroom provided with exhaust and ventilation of 15 room exchanges per hour discharging directly to the outside without re-circulation of air.
- Isolation rooms must be self-contained including washrooms and toilet facilities.
- Prompt chemotherapy must be instituted by the consultant designated by the hospital to be responsible for the treatment of pulmonary tuberculosis.
- Nursing should be carried out without special isolation procedures. Special clothing, masks, and gloves need not be worn for routine nursing. No special precautions need to be taken with regard to crockery, cutlery, or other utensils.
- Visitors should be allowed and the client's family should not be excluded.
- During the period of isolation the indications for deep breathing, coughing, and inhalation therapy should be carefully reviewed. If these items are important in the treatment plan, the Tuberculosis Consultants should review them.
- Isolation should be continued until two weeks of chemotherapy have been given.

These are general TB Control recommendations.

Hospitals should have their own specific Infection Control Guidelines for TB Control.

For more information refer to page 212 Canadian Tuberculosis Standards 2000.
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### FIRST NATIONS HEALTH SERVICES

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<td>Sheila Hourigan, RN</td>
<td>Celine Czernick</td>
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<td>TB Advisor</td>
<td>Regional TB Coordinator</td>
<td>Saskatoon Health Region - TB Laboratory</td>
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<tr>
<td>Phone: 953-0677</td>
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**Health Canada**

- **Regional TB Coordinator**
  - Name: Celine Czernick
  - Address: 4th floor – 2045 Broad Street, Regina, SK  S4P 3T7
  - Phone: 780-5932
  - Fax: 780-8826

**Saskatchewan Disease Control Laboratory**

- **Address**: 5 Research Drive, Regina, SK  S4S 0A4
- **Phone**: 787-3131
- **Fax**: 787-1525

**Saskatoon Health Region - TB Laboratory**

- **Address**: Royal University Hospital, 103 Hospital Drive, Saskatoon, SK  S7N 0W8
- **Phone**: 655-1769

**Ministry of Health**

- **Population Health Branch**
  - **Corporate Services**
    - **Address**: 3475 Albert Street, Regina, SK  S4S 6X6
    - **Phone**: 787-7638 or 787-7104
    - **Fax**: 787-3237
APPENDIX E
TUBERCULOSIS CONTROL RESOURCE INFORMATION

Booklet


Pamphlet

*Tuberculosis Today*

Available from:

TB Control - Saskatoon, Regina and Prince Albert offices (see contact # previous pages).

Book:

*Canadian Tuberculosis Standards* 5th Ed. 2000, Canadian Lung Association

Available from:

Saskatchewan Lung Association
1231-8th Street East, Saskatoon, SK. S7H 0S5
Phone: (306) 343-951

*A Clinician’s Guide To Tuberculosis*, Michael D. Iseman
List of Materials in the "Think TB" Teaching Kit:

Content:

2. List of Videos.
4. Posters and Tear sheets.
5. Pamphlets.
6. Printed copies of "Think TB!" video scripts.
7. Mr. TB Germ Flipchart.

Descriptions:

1. "Think TB" Idea Guidebook:  
   Book containing ideas.

2. Videos:  
   - "Think TB":  
     There are two videos in the series.
     
     Professional video for health workers (37 minutes), plus the General video for high school students and the general public (16 minutes).

     Cree and English versions of the printed scripts for the videos are included in the teaching kit.

     The videos help explain TB problems and the strategies that are being used to fight TB.

   - Joe and Annie Video and Newspaper:  
     Video - Tuberculosis can affect all of us. Joe and Annie learn about the basic symptom (a cough) and cause (bacteria) of TB while helping their mother to keep the family together and cure TB. Bravery, knowledge and determination let them discover that you can’t quit on TB. The disease can easily be overcome simply by taking pills for a sufficient length of time.

     Newspaper - This newspaper targets grade 4 - 6, accompanies the video. The paper gives an account of TB history, what TB is, who gets it. How it is spread, how you know if you have TB, what tests can be done to diagnose it, and what is done to help cure TB. To reinforce the information learned from the video and newspaper, activities and puzzle games are found on the back page of the newsprint.
• **TB "Rap" Video:**
  Highlights the disease TB, transmission, prevention and treatment of TB. Colourful animated cartoon characters interact with live footage. Includes an original rap to reinforce the educational message.

• **TB is Not Dead (3 languages):**
  Filmed in Saskatchewan with aboriginal actors. This video tells a story of a family affected by an active case of TB. Some of the history of TB in Saskatchewan is covered. Presented in 3 languages English, Dene and Cree. Generally used for adults, suitable for ages 10 and up.

  The videos can be used:
  - At staff inservices.
  - During classroom or other presentations.
  - On local community channel or other television stations.
  - In the waiting room during TB clinic days.
  - At displays.

3. **"Think TB" Bingo:**
   Not only is this game a lot of fun, but people can learn a lot about TB. It is best used after the videos and/or other presentations so people can learn the basic information about TB and become familiar with the words that are found in the bingo game. The game is very good for repeating information and reinforcing it in a way that is not boring. The game can be used with adults and with students as young as Grade 4 with assistance in reading.

4. **Posters and tear sheets:**
   - "Think TB" messages about TB in Cree, Dene, English and Saulteaux.
   - **TB Shifts the Circle of Life.**
   - **Stop TB** (from Atlanta CDC).
   - **Think TB** (from Atlanta CDC).
   - **Traditional Native Poster.**

   Suggested uses for the posters:
   - In bulletin board displays (at health centre, band office, school, etc.) just before presentations on TB.
   - At classroom presentations.
   - At TB clinic days.
   - In displays (stores, schools, health fairs, Treaty Days, etc.).
5. **Pamphlets:**
The following pamphlets are included in the "Think TB!" teaching-kit: (10 copies).

- **Tuberculosis fact Sheet:**
  A single-sided tear sheet that provides brief easy to understand answers to commonly asked questions about what TB is how it is spread, symptoms, testing and treatment.

- **What is Tuberculosis?**
  A pamphlet that explains the difference between TB infection and TB disease. There is a simple explanation of the Mantoux test, instructions for care of the test site, pictures to help illustrate possible test reactions, and a description of how reactions will be followed up.

- **Understand Tuberculosis:**
  This pamphlet can be used to address TB at a lower literacy level. The explanations are brief and the illustrations are culturally sensitive.

6. **Printed Copies of "Think TB!" Video Scripts:** (in English and Cree)
People who need a quick refresher on information before doing presentations can use this material for reference. It may also be useful for staff inservices.

7. **Mr. TB Germ Flipchart:**
This is a resource suitable for use in classrooms and with small groups. It is aimed at children, but can be used with any group which needs easy-to-understand material.

---

**Other Resources:**

For more information on the following contact the First Nations TB Nurse for your area.

- **TB is Back! fold out display (from Alberta Health):**
  This is an excellent resource that can be used: - at displays - during classroom or other presentations - at health fairs - in health centre waiting rooms, especially on TB clinic days.

- **TB Flannel Board:**
  The flannel board is a free-standing easel with a 2 foot display area. The colourful TB figurines stick to the board and tell the story of finding and treating TB at a child's understanding level. This activity must be presented and supervised by an adult. Is suitable for children up to age 10 years of age.
• **TB True/False Cookie Sheet Quiz:**
  This game is suitable for the older child who can read. It is a metal cookie sheet with true/false questions about TB. A battery tester attached to the metal backing makes a complete circuit when touched to the correct answer and lights up. Students can play this game while waiting for their program. Can be used at health fairs, treaty days, school screenings, and inservice education sessions. Should be used under supervision.

• **Video - Chasing The Cure: The Story of Fort San:**
  Before the discovery of antibiotics tuberculosis was an epidemic - contagious, no cure, the only hope for recovery was rest - years of it. TB patients were isolated in sanatoria far away from family and friends. This is the story of the human spirit in adversity. A story of hope, of community, and of the resources within us that make us whole. Chasing the Cure is a tape documentary which uses excerpts from the 1929 diary of 17 year old Fort San patient, Ernest Hande, as well as archival stills, 1933 and 1935 film footage, and interviews with former San patients, staff, and residents. This tells the story of the war the world waged against "The White Plague".

• **Video - To The Health of Us All:**
  A documentary film on Canada's role in domestic and international TB
  Produced by Donna Caruso

• **Video - Paediatric Tuberculosis: A Video Guide to Diagnosis and Treatment:**
  Comes with a workbook. Produced by the Francis J. Curry National Tuberculosis Centre, San Francisco.

• **Video - My Fathers' Legacy :**
  The story of Dr. R. G. Ferguson and his role in the Fort San, as told by Donna Caruso.
APPENDIX G
LABORATORY REQUISITIONS

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Other Information

Urine dipstick results:

Nitrate □ Positive □ Negative
Leukocytes □ Positive □ Negative

Test Requested

□ C & S
□ Pertussis
□ Diphtheria
□ Bacterial vaginosis
□ Mycobacterium culture
□ (Gram Stain only)
□ Ureaplasma/Mycoplasma
□ Legionella DFA & Culture
□ Other (specify)
□ Parasitology
□ Group B strep screen (vaginal & rectal)

Please ensure that requisition and specimens are properly labeled.
APPENDIX H

Tuberculin Screening Form Instructions - Preschool, School Age & Community
Saskatchewan First Nations TB Program
Abbreviated Guide - November 2002

Top Section of Form

Please complete all the information in both of the boxes in the top portion of the form.

- **Community** - where people are from
- **Year** - Year that screen is being done. (July 1 - June 30)
- **Screening Target Group** - Check off group applicable.
- **Nurse** - Indicate the nurse who is doing the screen or contact person.
- **Indicate if Screen is done on or off reserve.**

Client Section of Form

Begin by listing all of the individuals in the target population. In schools, list all the children in the group, even if they are not eligible for screening.

- **Consent** - Check if valid consent obtained, indicate here if not eligible for TBN.
- **TBN date** - Date TBN is administered.
- **Result in mm** - Record results in mm or record "AFR" if client is "absent for reading".
- **Registered name** - Record last, first, middle names of client. Indicate maiden name or alias, if applicable.
- **DOB** - record in year, month day format.
- **Sex** - M or F.
- ** Newly submitted results-**
  - Keep blank for original screening.
  - For subsequent TBN's complete this column with a star to indicate that the results on this client are new and were not previously submitted.
- **Submit to TB Nurse.**
- **Health Services # or Treaty #**
- **Comments** - Record here if the client resides in another community
  - This also a great section to record other pertinent information on the client.

Submission of the TB Screening Form

- Follow the instructions for submission at the top of the TB Screening Form.
- Please mail a photocopy of the TB Screening Form to the TB Nurse as you complete the first round of screening. Resubmit form with additional screening results completed, when the screening for this target population is completed.
- **Remember to immediately notify your area nurse at TB Control of significant results by phone or fax.**

*Contact your First Nations TB Nurse for more detailed instructions as to how to fill form out correctly.*
Tuberculin Screening
Saskatchewan First Nations TB Program
Revised November 2002

1. Immediately refer all significant reactors to your area nurse at TB Control.
2. Mail a copy of the entire list to:
3. Retain the original in your confidential Health Clinic files.

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<th>TBN Date</th>
<th>Result in mm</th>
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<th>DOB YY/MM/DD</th>
<th>Sex M or F</th>
<th>*for newly submitted results</th>
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</table>
# APPENDIX I

## REPORT OF VACCINE-ASSOCIATED ADVERSE EVENT FORM

### IDENTIFICATION

<table>
<thead>
<tr>
<th>patient identifier</th>
<th>province/territory</th>
<th>date of birth</th>
<th>year</th>
<th>month</th>
<th>day</th>
<th>sex</th>
<th>marital status</th>
</tr>
</thead>
</table>

### VACCINES

<table>
<thead>
<tr>
<th>vaccine(s) given</th>
<th>number in series</th>
<th>site</th>
<th>route</th>
<th>dosage</th>
<th>manufacturer</th>
<th>lot number</th>
</tr>
</thead>
</table>

### ADVERSE EVENT(S)

- **Local Reaction at Injection Site**
  - Infected Abscess
  - Sterile Abscess
  - Severe Pain and/or Severe Swelling
  - Soreness or pain at injection site

- **Systemic Reaction**
  - Fever
  - Severe Vomiting and/or Diarrhea

### Other Information

- **Neurological Abnormalities**
  - Encephalopathy
  - Guillain-Barré Syndrome

- **Other Severe or Unusual Events**

### Reporting

<table>
<thead>
<tr>
<th>reporter's name</th>
<th>telephone number</th>
<th>address (institution, city, province, postal code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>signature</td>
<td>date</td>
<td>year</td>
</tr>
</tbody>
</table>

**HC/SC 4229 (01/96)**
APPENDIX J

SAMPLE MEDICATION ADMINISTRATION RECORD

COMPLETE ALL INFORMATION

Name: ________________________ DOB: ____________________________
Address: ________________________ PHN: ________________________

Indicate if DOT or SAT

List medications, Dosage, Frequency & changes if any

1. Indicate Date New Medications arrived, RN to Co-sign Drug Count
2. Start New Page With Each New Shipment
3. Date Dose Given (Chart on Same Day - Do Not Delay Recording)

Indicate Number of Doses Dispensed

Indicate Here, if Dose of Medication is a Missed Dose

Date When Next Dose Will Be Dispensed

This is the NUMBER of DOSES REMAINING of the MONTH'S SUPPLY (i.e. Total Doses Receives Minus the Doses Actually Given)

Mode of Therapy

DOT (Directly Observed) □
SAT (Self - Administered) □
DOT means EVERY dose is OBSERVED TO BE TAKEN

Information to Be Recorded

1. Drugs Commenced of Received
2. Challenges in Getting Drugs To Client
3. Possible Drug Side Effects
4. When Drug Sheet Sent To TB Control
5. Record Treatment Changes & Start New Sheet
6. Delays in Getting Nest Drug Shipment
7. Record Number of Doses Returned to TB Control
8. Monthly Children's Weight
9. Other Remarks

Indicate Where Medication Was Taken

Signature of CHN & TBPW

Number of Full &/or Empty Doses Returned to TB Control AND
# Medication Record

**Name:**

**DOB:**

**Address:**

**PHN:**

## Mode of Therapy

- DOT (Directly Observed) □ X
- SAT (Self-Administered) □

**DOT means EVERY dose is OBSERVED TO BE TAKEN**

<table>
<thead>
<tr>
<th>Date</th>
<th>Doses Given</th>
<th>Doses Not Given</th>
<th>Date Next Dose Due</th>
<th>Doses Left on Hand</th>
<th>Comment</th>
<th>Where</th>
<th>Signature</th>
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</thead>
<tbody>
<tr>
<td>May 13/02</td>
<td>1</td>
<td></td>
<td>May 16/02</td>
<td>7</td>
<td>Took Well</td>
<td>X</td>
<td>TBPW</td>
</tr>
<tr>
<td>May 16/02</td>
<td>1</td>
<td></td>
<td>May 20/02</td>
<td>6</td>
<td>Took Well</td>
<td>X</td>
<td>TBPW</td>
</tr>
<tr>
<td>May 20/02</td>
<td>1</td>
<td></td>
<td>May 21/02</td>
<td>6</td>
<td>NOT HOME Fussed with meds</td>
<td>X</td>
<td>TBPW</td>
</tr>
<tr>
<td>May 21/02</td>
<td>1</td>
<td></td>
<td>May 24/02</td>
<td>5</td>
<td>Took Well</td>
<td>X</td>
<td>TBPW</td>
</tr>
<tr>
<td><strong>MAY 24/02</strong></td>
<td>1</td>
<td></td>
<td>May 27/02</td>
<td>4</td>
<td>Fussed with meds</td>
<td>X</td>
<td>TBPW</td>
</tr>
<tr>
<td>May 27/02</td>
<td>1</td>
<td></td>
<td>May 28/02</td>
<td>4</td>
<td>NOT HOME Fussed with meds</td>
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<tr>
<td>May 28/02</td>
<td>1</td>
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<td>May 31/02</td>
<td>3</td>
<td>Took Well</td>
<td>X</td>
<td>TBPW</td>
</tr>
<tr>
<td>May 31/02</td>
<td>1</td>
<td></td>
<td>June 3/02</td>
<td>2</td>
<td>Took Well</td>
<td>X</td>
<td>TBPW</td>
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<tr>
<td>June 3/02</td>
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<td>TBPW</td>
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<td>June 6/02</td>
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<td>June 10/02</td>
<td>0</td>
<td>Took Well</td>
<td>X</td>
<td>TBPW</td>
</tr>
</tbody>
</table>

**June 6/02 - 8 empties returned to TB Control RN/TBPW**

- Submit Top Copy Monthly to the TB Clinic Which Services Your Area

**Saskatoon TB Control**
5th Floor Ellis - Hall, 103 Hospital Drive
Royal University Hospital
Saskatoon, Sask. S7N 0W8

**PA TB Clinic**
Community Clinic
110-8th Street East
Prince Albert, Sask. S6V 0V7

**Regina TB Clinic**
Regina General Hospital
1440 - 14th Avenue
Regina, Sask. S4P 0W5
**APPENDIX K**

**CONTACT INFORMATION SHEET**

<table>
<thead>
<tr>
<th>File #: __________________________</th>
<th>Province: ________________</th>
<th>Family Doctor: ____________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Name: ______________________</td>
<td>Given Name: ______________</td>
<td>Other Name: ________________________________</td>
</tr>
<tr>
<td>Health District: ________________</td>
<td>Address: ____________________</td>
<td>Work Phone: ________________________________</td>
</tr>
<tr>
<td>Postal Code: ________________ Home Phone: ________________</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Residence Code:</th>
<th>City</th>
<th>Town</th>
<th>Village</th>
<th>Hamlet</th>
<th>S-E</th>
<th>Reserve</th>
<th>Rural Municipality</th>
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</thead>
<tbody>
<tr>
<td>Registration:</td>
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<td>Resident of a long term care facility:</td>
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<thead>
<tr>
<th>Gender:</th>
<th>Male</th>
<th>Female</th>
<th>Unknown</th>
<th>Ethnic Origin:</th>
<th>Caucasian</th>
<th>Indian</th>
<th>Métis</th>
<th>Asian</th>
<th>Other</th>
<th>Unknown</th>
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<tbody>
<tr>
<td>Date of Diagnosis:</td>
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<td>Weight:</td>
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<td>Date of Birth:</td>
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<td>Age:</td>
<td>Years</td>
<td>Months</td>
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<tr>
<td>Marital Status:</td>
<td>Single</td>
<td>Married/Common Law</td>
<td>Separated</td>
<td>Divorced</td>
<td>Widowed</td>
<td>Unknown</td>
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<td>Next of Kin or Close Friend:</td>
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<td>Birth Country:</td>
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<td>Year Arrived in Canada:</td>
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<tr>
<th>Tuberculin Status: First TB Test Reading in mm:</th>
<th>BCG: Yes</th>
<th>No</th>
<th>Scar</th>
<th>Unknown</th>
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<tbody>
<tr>
<td>Last TB Test Reading in mm:</td>
<td>BCG Year:</td>
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**Reactivated Case:** | Year Last Active: | Country: | Code: | |
|---------------------|------------------|----------|-------| |

| Previous Drugs: | |
|-----------------| |

**Patient on Previous Preventive Chemotherapy Before:** Start Date: | Duration/Months: |
| Method Of detection: | |
| Contact | If Yes, to whom: | |

| Drug Treatment: Date Started | Type and Doses: | |
|-----------------------------|-----------------| |
| First MB Test: | | |
| Last MB Test: | | |

<table>
<thead>
<tr>
<th>Current Chest X-ray Results:</th>
<th>Normal</th>
<th>Abnormal</th>
<th>Unreadable</th>
<th>Deflation</th>
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<tbody>
<tr>
<td>X-ray Status:</td>
<td>Airspace</td>
<td>Cavity</td>
<td>Adenopathy</td>
<td>Effusion</td>
</tr>
</tbody>
</table>

| Classification: | |
|-----------------| |
| ICD CODE 1: | ICD CODE 2: | ICD CODE 3: | |
| CONTACT TRACING TO BE DONE: | YES | NO | |

Saskatchewan TB Control
## CONTACT INFORMATION FORM

Please list contacts in the following format:

1. Names of contacts that live in the same house.
2. Names of family contacts that do not live in the house.
3. Names of other contacts.

### PLEASE PRINT

1. **NAMES OF CONTACTS IN THE SAME HOUSE**

<table>
<thead>
<tr>
<th>LAST</th>
<th>NAME</th>
<th>FIRST</th>
<th>SECOND</th>
<th>MAIDEN NAME/OR BIRTH SURNAME</th>
<th>DOB (Y.M.D)</th>
<th>RELATIONSHIP TO</th>
<th>ADDRESS &amp; TREATY # (IF APPLICABLE)</th>
<th>PREVIOUS TBN DATE AND RESULTS</th>
<th>BCG YEAR</th>
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2. **NAME OF FAMILY CONTACTS NOT IN THE HOUSE**

<table>
<thead>
<tr>
<th>LAST</th>
<th>NAME</th>
<th>FIRST</th>
<th>SECOND</th>
<th>MAIDEN NAME/OR BIRTH SURNAME</th>
<th>DOB (Y.M.D)</th>
<th>RELATIONSHIP TO</th>
<th>ADDRESS &amp; TREATY # (IF APPLICABLE)</th>
<th>PREVIOUS TBN DATE AND RESULTS</th>
<th>BCG YEAR</th>
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APPENDIX L

CONTACT INFORMATION FORM
### NAMES OF OTHER CONTACTS

<table>
<thead>
<tr>
<th>LAST</th>
<th>FIRST</th>
<th>SECOND</th>
<th>MAIDEN NAME/OR BIRTH SURNAME</th>
<th>DOB (Y.M.D)</th>
<th>RELATIONSHIP TO</th>
<th>ADDRESS &amp; TREATY # (IF APPLICABLE)</th>
<th>PREVIOUS TBN DATE AND RESULTS</th>
<th>BCG YEAR</th>
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APPENDIX M

Employee Surveillance in Long-term Care (LTC) Facilities

The 2000 CTS (page 220) recommend a Mantoux skin test upon initiation of employment for employees of LTC facilities. The CTS does not recommend annual screening unless there is an increased prevalence of infection on initiation of employment or an increased rate of skin test conversion in the facility. In contrast, the most recent Health Canada guidelines recommend a 2step Mantoux skin test upon initiation of employment in LTC facilities and repeat testing based on an approach which considers the frequency of cases and clustering of cases.

The Saskatchewan TB Control program approach was formulated in consultation with LTC facilities and is a compromise between the CTS and LCDC guidelines. We only recommend 2step Mantoux skin testing for employees over the age of 50 because the booster effect is seen more commonly in this group. Individual institutions have the option of conducting 2-step testing in employees to meet the LCDC guidelines but there is currently no literature indicating that this would reduce the incidence of tuberculosis.
REFERENCES


