APPENDICES

APPENDICES

Appendix 1:Drug Considerations for Special Situations

Pregnancy

Rifampin
Isoniazid
Ethambutol
} have all been approved for use in pregnancy and may be continued during breast feeding.

Pyrazinamide has not been approved for use during pregnancy, not because of any demonstrated adverse effect, but for lack of information.

Streptomycin affects the fetal eighth cranial nerve and is thus contraindicated during pregnancy.

Renal Failure

Rifampin and Isoniazid do not depend on the kidneys for elimination from the body and may thus be used in standard doses in patients with renal failure.

- Patients with renal failure seem to be particularly prone to the development of peripheral neuropathy whil taking Isoniazid. It is therefore recommended that vitamin B6 be given at a dose of 50mg per day in conjunction with Isoniazid in such patients.

Pyrazinamide excretion is delayed in renal failure and the drug does cause serum urate levels to rise.

- Nevertheless, pyrazinamide may be used in renal failure although the dose is usually decreased and/or the interval between doses increased. For example, in severe renal failure, the frequency of the dose could be decreased from daily to 3 times per week, and the dose itself decreased to 40 mg/kg (i.e. 2-2.5 gm thrice weekly).
- The drug is cleared by dialysis and should be given 24 hours before dialysis.

Ethambutol depends entirely on the kidneys for clearance and blood levels of the drug are difficult to obtain.

- Because it may cause irreversible blindness, Ethambutol should be avoided when renal function is impaired.

Streptomycin may be used in renal failure at a dose of 750 mg twice per week.

- It should be given at least 6 hours before dialysis.

Renal or Other Transplant

In patients who have had renal or other transplants, tuberculosis treatment has a significant interaction with drugs such as corticosteroids and cyclosporin used to protect the patient from organ rejection.

Careful collaboration with the transplant team is essential.

HIV Infected Patients

Treatment regimens for tuberculosis in those co-infected with HIV may not need to be modified although it is still current practice to continue treatment for drug susceptible isolates for 9 months, and at least 6 months after the culture becomes negative.

Because there may be an increased prevalence of resistant *M. tuberculosis* in subjects with HIV infection, initial treatment must include 4 drugs (rifampin, isoniazid, pyrazinamide and ethambutol).

It is important to recognize the significant risk of interaction between the anti-tuberculosis drugs and the antiretrovirals used to treat patients with HIV disease.

Children

Tuberculosis regimens for children need to have doses adjusted in accordance with the child's weight.

Ethambutol is usually not recommended in children who are unable to cooperate in testing of colour vision or of visual acuity. Ethambutol may, however, be used at a dose of 15mg/kg when treating disease caused by known or suspected drug resistant *Mycobacterium tuberculosis*.

Appendix 2:Public Health Act and CD Regulations for Tuberculosis

The direction of the Tuberculosis Control Program in Alberta is structured in accordance with the *Alberta Public Health Act** and *Communicable Disease Regulation**, under which the Act is translated. Key aspects of the Public Health Act and CD Regulation, are summarized here.

Public Health Act: (Part 4)

- Sections 31 to 48 of the Public Health Act describe the duty of health care workers to report known or suspected communicable diseases to the Medical Officer of Health, who in turn will notify the Provincial Health Officer and ensure appropriate investigations are begun.

- Sections 49 to 62 deal with management of Recalcitrant Patients.

Communicable Disease Regulation (specifically as they relate to the TB Program)

- Schedule 1 describes Tuberculosis as one of the prescribed notifiable diseases.

- Section 3 (1): The Minister may provide free of charge drugs for the treatment or modification of communicable diseases.

- Section 4: In any dispute as to the diagnosis of a disease in respect of which action may be taken under section 39 (1) of the Act, the medical officer of health's decision as to the diagnosis of the disease is final, subject only to a review by the Director.

- Section 5: When a person is infected with a communicable disease in respect of which the Act requires that notification be given to a medical officer of health, the notification shall be given to the medical officer of health of the health unit in which the person was located at the time of the onset of symptoms.

- Section 7: A medical officer of health may, in exercising his powers and carrying out his duties under the Act and this Regulation, use the assistance of the community health nurses and inspectors.

- Section 8 (1): A medical officer of health shall, in accordance with Schedule 4, investigate all occurrences of notifiable disease to establish the cause, the mode of transmission and the probable source and to identify others who may be at risk.

  (2): In addition to the specific provisions to Schedule 4, a medical officer of health shall take whatever steps are reasonably possible

  i) to suppress disease in those who may already have been infected with a communicable disease

  ii) to protect those who have not already been exposed

  iii) to break the chain of transmission and prevent spread of the disease

  iv) to remove the source of infection

- Schedule 3 designates tuberculosis as one of the diseases for which warrants for recalcitrant patients may be issued.

- Schedule 4, as it relates to tuberculosis indicates that:
    1. Individual occurrences are reportable by all sources to the medical officer of health within 48 hours
    2. The medical officer of health shall conduct an investigation of the source of the infection and all the contacts in accordance with the directions of the Director of Tuberculosis Services in the Department.
    3. (1) In the case of Pulmonary Tuberculosis in an infectious form, modified (respiratory) isolation procedures apply until the person is no longer infectious.
       (2) Modified (secretion or contact) isolation procedures apply to a person with cutaneous tuberculosis lesions or discharging sinuses until the lesions or sinuses are shown to be bacteriologically sterile.
    5. (1) The medical officer of health shall order that all familial contacts and all other contacts he considers to have been sufficiently exposed are tuberculin tested.
       (2) Where a person who is tested pursuant to subsection (1) has a positive reaction
          (a) the medical officer of health shall order a chest x-ray and any other diagnostic procedures he considers appropriate, and
          (b) the person is subject to surveillance until the medical officer of health is satisfied that the risk of infection has passed.
    6. The medical officer of health shall by order exclude a person with cutaneous tuberculosis in an infectious form from public places and from employment in occupations involving the care of children, close contact with the public or the handling of food until the person is no longer infectious.

*Copies of these publications can be obtained from the Queen's Printer.

Appendix 3: Sputum Collection

Sputum should always be collected by the least obtrusive means possible. If the client is unable to produce sputum spontaneously, assistance will be necessary. The following procedures are set out in order of least obtrusive to most obtrusive.

Note: To protect the health care worker and others, sputum specimens from a client with suspected active tuberculosis should always be collected in a separate room with air vented to the outside or in the open air. While collecting a sputum specimen, the health worker should wear a mask capable of filtering 95% or more of the particles less than 1 micron in size. If this is not possible, serious consideration should be given to obtaining the specimens at a centre with the necessary facilities.

3A Sputum Induction (without aerosolization)

Equipment

- sterile specimen containers (well labelled) with secure lids
- completed laboratory requisitions indicating sputum is to be tested for AFB
- transport containers with sealable plastic (biohazard) bags
- facial tissues
- separate room vented to the outside
- well-fitting mask for specimen collector

Assessment Steps	Rationale
1. Assess level of hydration.	Dry mouth and dehydration can inhibit deep coughing and sputum production. Provide increased fluids the day before specimen collection.
2. Assess client's ability to cough and expectorate.	Pain, weakness, inadequate coughing technique and fear of stress incontinence can inhibit coughing and sputum production.
3. Determine client's need for assistance to cough.	Positioning, postural drainage, chest vibration, support to rib cage and/or inhalation of warm mist may improve ability to cough productively. Sitting on an incontinence pad or toilet may relieve fear of incontinence.
4. Assess client's respiratory status (rate, depth, pattern, skin colour).	Active coughing can cause bronchospasm.

Procedure Steps	Rationale
1. Plan to collect specimen in the early morning before breakfast, if possible.	Bacteria are concentrated in bronchial secretions that have accumulated overnight. Sputum collected prior to breakfast is less likely to be contaminated with food.
2. Provide privacy.	Procedure may be embarrassing to client and offensive to others.
3. Fit your mask snugly.	Minimizes inhalation of airborne droplets.
4. Describe procedure and explain reason for test. Mucus must come up from as deep in the lungs as possible.	Understanding reduces anxiety and promotes co-operation and the production of a quality specimen.
5. Open sputum container, keep lid and give only the bottom to client, asking client not to touch inside of container.	Minimizes transmission and contamination of specimen container.
6. Instruct client to inhale and exhale deeply 3 times, then inhale quickly, cough forcefully, and expectorate into sputum container. Demonstrate.	Promotes deep coughing.
7. Check quality and quantity of the sputum. If amount is insufficient, encourage client to repeat procedure.	A specimen of 3 - 5 ml containing solid or purulent material is desirable. Production of a quality specimen may take a few efforts and up to 15 minutes.
8. Close labelled sputum container securely, wrap in absorbent material, and place into a zip-lock plastic (biohazard) bag. Place the bag into a designated transport container.	Minimizes spillage and exposure of health workers during transport.
9. Enclose appropriately labelled requisition in sleeve of bag designed for this purpose (sputum, mycobacteria AFB).	Assures identification and proper testing of specimen.
10. Forward specimen to the laboratory as soon as possible.	Prompt delivery reduces opportunity for normal organisms to contaminate specimen.
11. Consult Tuberculosis Control or the practitioner who requested the specimen if collection of sputum is unsuccessful.	Referral for aerosolization, gastric washing or a bronchoscopy may be required.

3B Sputum Induction Using Aerosolization

This procedure may require the assistance of a respiratory therapist.

Equipment

- sterile specimen containers with secure lids
- client specific identification labels
- completed laboratory requisitions indicating sputum is to be tested for mycobacteria AFB and was collected using aerosolization
- transport containers with sealable plastic (biohazard) bags
- facial tissues
- emesis basin (for gagging or accidental vomiting)
- high volume nebulizer/aerosol set-up with cold neb tubing and mask
- compressed air source with flowmeter and fitting for attachment to the nebulizer set-up
- NaCl solution (hypertonic saline), made up by pharmacist: reliable studies recommend 6 ml/min of 3% hypertonic saline using an ultrasonic nebulizer
- bronchodilator inhalant in case of bronchospasm
- separate room vented to the outside
- well-fitting mask for specimen collector

Assessment Steps	Rationale
1. Assess client's ability to cough and expectorate.	Pain, weakness, inadequate coughing technique and fear of stress incontinence can inhibit coughing and sputum production.
2. Determine client's need for assistance to cough.	Positioning, postural drainage, chest vibration, support to rib cage. Sitting on an incontinence pad may relieve fear of incontinence.
3. Assess client's respiratory status (rate, depth, pattern, skin colour).	Inhaling hypertonic saline can cause irritation leading to bronchospasm. Inhaling bronchodilator will relieve bronchospasm.

Procedure Steps	Rationale
1. Prepare to collect specimen in a separate well-ventilated room.	Minimizes spread of infectious organisms to health care provider and others.
2. Plan to collect specimen in the early morning before breakfast, if possible.	Bacteria are concentrated in bronchial secretions which have accumulated overnight. Sputum collected prior to breakfast is less likely to be contaminated with food.
3. Provide privacy.	Procedure may be embarrassing to client and offensive to others.
4. Assist client to sit in an upright position.	Promotes proper coughing technique.
5. Describe procedure and explain that mist from mask will aid sputum production. Mucus must come up from as deep in the lungs as possible. Spit or saliva is not acceptable.	Understanding reduces anxiety and promotes co-operation and the production of a quality specimen.
6. Fill nebulizer with 3% hypertonic saline.	Hypertonic saline will cause airway irritation that will induce sputum production and coughing.
7. Attach aerosol mask and nebulizer to air delivery system according to manufacturer's instructions. Set flowmeter to 6 ml/min.	To produce optimum aerosol flow.
8. Open the sputum container, keep the lid and give only the bottom to the client, asking the client not to touch the inside of the container.	Minimizes transmission and contamination of specimen container.
9. Fit your mask snugly.	Minimizes health worker's inhalation of airborne droplets.
10. Instruct the client to hold the aerosol mask while breathing the mist for 15 minutes (this will take approximately 70-90 ml. of solution). Then have them cough forcefully and expectorate into the sputum container.	Promotes deep coughing.
11. Check quality and quantity of the sputum. If amount insufficient, encourage client to repeat procedure.	A specimen of approximately 5 ml containing solid or purulent material is sufficient. When aerosolization is used, specimen may appear watery. May take a few efforts to produce quality specimen.
12. Close the labelled sputum container securely, wrap in absorbent material and place in a zip-lock plastic (biohazard) bag. Place the bag into a designated transport container.	Minimizes spillage and exposure for health workers during transport.
13. Enclose the appropriately labelled requisition. **Indicate that aerosolization used**.	Assures identification and proper testing of specimen that may appear to be saliva.
14. Send specimen to the laboratory as soon as possible.	Prompt delivery reduces opportunity for normal organisms to contaminate specimen.
15. Dispose of aerosol mask, hypertonic saline and empty containers used unsuccessfully to collect sputum in agency designated container.	Prevents spread of infectious organisms and contamination of a future specimen.
16. Remove your mask and wash hands (yours and theirs) with soap and water.	Washing hands minimizes spread of infectious organisms.
17. If using ultraviolet light for disinfection, leave on for 1 hour.	Allows for proper disinfection of collection area.
18. Consult Tuberculosis Control or the practitioner who requested the specimen if collection of sputum is unsuccessful.	Gastric washing or a bronchoscope may be required.

3C Sputum Collection Using Gastric Aspiration

This is an uncomfortable procedure used **only** for collecting specimens from children and the elderly who cannot produce sputum by expectoration or nebulization.

Equipment

- sterile specimen containers with secure lids containing phosphate buffer to neutralize gastric acid (available from Provincial Laboratory of Public Health)
- client specific identification labels
- completed laboratory requisitions indicating gastric wash specimens are to be tested for mycobacteria (AFB)
- transport containers with sealable plastic (biohazard) bags
- nasogastric tubing (size 8F for children, 10-12F for adults)
- water based lubricant
- 50 - 60 ml catheter tip syringe for aspiration
- 30 ml sterile distilled water or normal saline if necessary
- emesis basin (for gagging or accidental vomiting)
- stethoscope
- clamp
- well-fitting mask for specimen collector

Assessment Steps	Rationale
1. Assess client's ability to understand procedure.	Allows nurse to tailor teaching plan to client's level of understanding.
2. Determine recent history of antimicrobial therapy.	Antimicrobial drugs can weaken bacilli and cause false negative results. Procedure should be performed prior to antimicrobial therapy.

Procedure Steps	Rationale
1. Plan to collect specimen in the early morning before breakfast, if possible. For very young children the procedure should be performed immediately after awakening.	Food may cause digestion, thereby removing stomach contents and decreasing the amount of sputum and number of bacteria available for collection.
2. Provide privacy.	Procedure may be embarrassing to client.
3. Describe procedure and explain that the nasogastric tube may cause gagging but that relaxing and following instructions will ease the process.	Understanding reduces anxiety and promotes co-operation.
4. Obtain baseline heart rate and rhythm.	Some individuals develop arrhythmias during this procedure.
5. Fit your mask snugly.	Minimizes health worker's inhalation of airborne droplets.
6. Assist client to assume high Fowler's position.	Decreases potential for aspiration and promotes entry of tube into stomach.
7. Follow your agency procedure for insertion of nasogastric or orogastric tube and note contraindications.	Assures proper insertion.
8. Aspirate more than 2 ml of stomach contents with syringe.	If no aspirate is obtained, instil 30 ml of sterile distilled water or normal saline and re-aspirate.
9. Empty contents of syringe into specimen bottle containing phosphate buffer.	Gastric acid can inhibit the growth of tubercle bacilli.
10. Close specimen container securely, apply label, wrap in absorbent material and place container into a sealable plastic (biohazard) bag in a designated transport container.	Minimizes spillage and exposure for health workers during transport.
11. Enclose the appropriately labelled requisition (gastric washing, mycobacteria AFB). Note recent antimicrobial therapy.	Assures identification and proper testing of specimen.
12. Clamp and remove tube and offer appropriate comfort measures.	Procedure is uncomfortable.
13. Refrigerate specimen and send to the laboratory as soon as possible.	Prompt delivery reduces opportunity for normal organisms to contaminate specimen.
14. Remove mask and wash hands according to your agency policy.	Minimizes spread of infectious organisms.

Appendix 4:Second-Line Antituberculous Drugs--Doses and Common Adverse Reactions

Drug†	Usual Adult Daily Dosage‡	Peak Serum Concentration	Recommended Regular Monitoring	Adverse Reactions
Amikacin	15 mg/kg	35-45 µg/ml	Vestibular function, audiometry, blood urea nitrogen, creatinine, electrolytes	Auditory, vestibular and renal toxicity. If possible, avoid in pregnancy.
Kanamycin	15 mg/kg	35-45 µg/ml	Vestibular function, audiometry, blood urea nitrogen, creatinine, electrolytes	Auditory, vestibular and renal toxicity. If possible, avoid in pregnancy.
Capreomycin	15 mg/kg	35-45 µg/ml	Vestibular function, audiometry, blood urea nitrogen, creatinine, electrolytes	Auditory, vestibular and renal toxicity. Avoid in pregnancy.
Ethionamide	250 mg BID or TID	1-5 µg/ml	Hepatic enzymes, glucose	GI disturbance, hepatotoxicity, psychotic reactions, hypoglycemia. Avoid in pregnancy.
Para-Amino salicylic Acid	4 gm BID or TID	20-40 µg/ml	Hepatic enzymes, electrolytes, thyroid function	GI disturbance, hepatic dysfunction, hypokalemia. Avoid in renal failure.
Cycloserine	250 mg BID or TID	20-35 µg/ml	Mental status	Avoid in patients with epilepsy, mental illness or alcoholism.
Ofloxacin Ciprofloxacin Sparfloxacin Levofloxacin	400 mg BID 750 mg BID 200 mg BID 500-750 mg OD	8-10 µg/ml 3-5 µg/ml	Hepatic enzymes	GI disturbance, headache, anxiety, tremulousness. Avoid in pregnant women or growing children.
Rifabutin	350-450 mg		Hepatic enzymes, complete blood count	Hepatotoxicity, uveitis thrombocytopenia, neutropenia.
Clofazimine	100-300 mg OD		Maccular pigmentary changes	Skin discolouration, icthyosis, anorexia, nausea, vomiting, abdominal pain, peripheral neropathy, rare occular changes.

† Second line drugs are more difficult to manage than first-line drugs.
They should be administered and monitored by health care providers experienced in their use.

‡OD—once daily, BID—twice a day, TID—3 times a day

Appendix 5.A:

Isoniazid (INH) Preventive Therapy Fact Sheet

Isoniazid preventive therapy is ideally administered over a period of 9 months (270 doses of 5 mg/kg self-administered over 9 to 12 months; 78 doses of 15 mg/kg twice weekly directly observed over 9-12 months). Although somewhat arbitrary and subject to change, the following are the minimum recommendations for monitoring during INH preventive therapy. * Similar recommendations are made in the *Canadian Tuberculosis Standards*.

1. **Baseline liver function testing (AST or ALT level) is recommended before INH preventive therapy in those over age 35 years and under ideal circumstances, in all age groups.**

2. **Monitoring, on a monthly basis, for symptoms of hepatotoxicity** (nausea, vomiting, abdominal discomfort, anorexia, tea coloured urine, yellow pigmentation, rash, persistent fever, fatigue that is temporally related to the introduction of INH) is recommended for the duration of preventive therapy in all age groups. This is carried out by the Public Health Nurse. Recipients of INH should also be warned of these symptoms and asked to bring them to the attention of the Public Health Nurse or family physician if they should develop between scheduled visits

3. **For those 20 years and younger**, in the absence of symptoms, no liver function testing is required after introduction of preventive therapy.

4. **For those greater than 20 and less than 35 years**, it is recommended that AST (ALT) be measured after one (1), two (2) and three (3) months of preventive therapy, and as necessary thereafter.

5. **For those greater than 35 years**, it is recommended that AST (ALT) be measured after one (1), two (2), three (3), six (6) and nine (9) months of preventive therapy.

* Special consideration needs to be given to those individuals who have co-existing conditions that increase the risk of hepatotoxicity or those taking medications known to interact with INH.

Because of concerns about use of any medication during pregnancy and of limited data suggesting an increased frequency of hepatotoxicity during pregnancy and the postpartum period, preventive therapy is usually deferred until after delivery. However, in tuberculin reactors who are HIV seropositive or who are contacts of infectious tuberculosis patients, and in those with recent skin test conversions, preventive therapy is begun after the first trimester.

If baseline AST (ALT) is increased above the upper limit of normal, then the case should be discussed with the Edmonton or Calgary TB Clinic or Alberta Health and Wellness TB Control or before proceeding.

Although there are no fixed rules regarding when to discontinue INH on account of hepatotoxicity, generally speaking, if symptoms are thought to be due to INH toxicity, the drug should be stopped and if the aminotransferase levels exceed three (3) to five (5) times the upper limit of normal, consideration needs to be given to stopping the drug. Higher levels are occasionally acceptable and continuation or re-introduction of INH may be possible but these decisions should be made collaboratively with the TB Clinics or TB Control.

Appendix 5.B:

Rifampin Preventive Therapy Fact Sheet

When rifampin is used for purposes of preventing tuberculosis it is used in one of three regimens:

a) monotherapy; 10 mg/kg daily, unsupervised, to a total of 120 doses over 4 – 6 months.
b) combined with isoniazid; twice weekly, directly observed isoniazid (15 mg/kg), rifampin (10 mg/kg) and pyridoxine 50 mg to a total of 52 doses over 6 months.
c) combined with pyrazinamide; daily, directly observed, rifampin (10 mg/kg) and pyrazinamide (20 mg/kg) to a total of 60 doses over 90 days.

Although somewhat arbitrary and subject to change, the following are the minimum recommendations for monitoring during rifampin preventive therapy. The recommendations only apply to regimens a) and b) above. For recommendations regarding regimen c) above, the reader is referred to the pyrazinamide fact sheet. Similar recommendations are made in the *Canadian Tuberculosis Standards*.

1. **Baseline liver function testing (AST or ALT) and a complete blood count (CBC), white blood count (WCB) and platelet count are recommended before rifampin preventive therapy in all age groups.**

2. **For those receiving a 4 month or 6 month rifampin containing preventive therapy regimen, monitor on a monthly basis for symptoms of hepatotoxicity** (nausea, vomiting, abdominal discomfort, anorexia, tea coloured urine, yellow pigmentation, rash, persistent fever, fatigue temporally related to the introduction of rifampin and unexplained by other mechanisms). This monitoring is carried out by the Public Health Nurse. Recipients of rifampin should be warned of these symptoms and asked to bring them to the attention of the public health nurse or family physician should they develop between scheduled visits.

   It should be noted that the dark urine of hepatitis is to be distinguished from the orange discoloration of urine, saliva and tears that may occur on rifampin treatment. The latter is of little consequence except for those wearing soft contact lenses who should be advised that rifampin may lead to permanent discoloration of the lenses from pigmented tears.

3. **For those 20 years of age and younger**, no liver function testing is required after introduction of preventive therapy in the absence of symptoms.

4. **For those greater than 20 years of age and less than 35 years**, it is recommended that the AST (ALT) and CBC, WBC and platelet count be measured after one (1), two (2), and three (3) months of preventive therapy, and as necessary thereafter.

5. **For those greater than 35 years**, it is recommended that the AST (ALT) and CBC, WBC and platelet count be measured after one (1), two (2), three (3), four (4), and (if on a 6 month regimen) six (6) months of preventive therapy.

It must be appreciated that there is relatively less experience with rifampin as preventive therapy than is the case with isoniazid. Outlined below are special considerations.

a) Rifampin may interact with a number of other drugs the patient is already taking or planning to receive. Some of the more significant drug-drug interactions are:
   - Rifampin induces liver microsomal enzymes, resulting in more rapid elimination of the following compounds:
     - protease inhibitors
     - azole antifungal agents
     - corticosteroids (exogenous and endogenous)
     - warfarin anticoagulants
     - opiates, including methadone
     - oral hypoglycemic agents
     - macrolides
     - anticonvulsants
     - antiarrythmics, beta blockers and calcium channel blockers
     - benzodiazepines
     - cyclosporin
   - The following compounds inhibit the liver microsomal enzymes resulting in retarded elimination of rifampin:
     - protease inhibitors
     - azole antifungal agents
     - clarythromycin

b) Although rifampin is not known to be toxic to the fetus, because of concern about the use of any medication during pregnancy, preventive therapy is usually deferred until after delivery. However, in tuberculin reactors who are HIV seropositive or who are contacts of infectious tuberculosis patients, and in those with recent skin test conversions, preventive therapy is begun immediately.

c) Closer monitoring of patients whose initial evaluation suggests a liver disorder (e.g. hepatitis B or C, alcoholic hepatitis, or cirrhosis, and other persons who use alcohol regularly or are otherwise at risk for chronic liver disease) may be needed.

d) If baseline AST (ALT) is increased above the normal or baseline cell counts are decreased below normal, then the case should be discussed with the Capital Health TB Clinic or the Calgary Region TB Clinic, or Alberta Health and Wellness TB Control before proceeding.

e) Although there are no fixed rules regarding when to discontinue rifampin on account of hepatotoxicity, generally speaking, if symptoms are thought to be due to rifampin toxicity the drug should be stopped and if the aminotransferase levels exceed three (3) to five (5) times the upper limit of normal, consideration needs to be given to stopping the drug. Higher levels are occasionally acceptable and continuation or reintroduction of rifampin may be possible but these decisions should be made collaboratively with the clinics or TB Control.

f) When rifampin is administered with isoniazid or pyrazinamide there is a slightly increased incidence of hepatotoxicity than with either drug alone.

g) Rarely rifampin may be associated with adverse effects other than hepatotoxicity or abnormalities in the peripheral blood cell counts. These include fever, rash, memory impairment, renal toxicity and altered immune responses. A very rare hypotensive reaction similar to anaphylactic shock has also been described.

Appendix 5.C:

Pyrazinamide Preventive Therapy Fact Sheet

When pyrazinamide is used for preventing tuberculosis it is always used with another drug; usually with rifampin but on occasion with ethambutol or a quinolone. When combined with rifampin it is administered daily and directly observed; doses are pyrazinamide 20 mg/kg and rifampin 10 mg/kg to a total of 60 doses of each drug over 60 – 90 days

Although somewhat arbitrary and subject to change, the following are the minimum recommendations for monitoring during pyrazinamide preventive therapy. Similar recommendations are made in the *Canadian Tuberculosis Standards.*

1. **Pyrazinamide may be hepatotoxic. It may increase the risk of hepatotoxicity associated with rifampin alone. Monitoring of rifampin is as outlined on the rifampin fact sheet.**

2. A preventive therapy regimen of rifampin and pyrazinamide is not recommended in those with underlying liver disease. Ideally, knowledge of the patient's HCV and HBV serologic status, prior to the introduction of the regimen should be established.

3. Pyrazinamide can cause elevation of serum uric acid levels by inhibition of renal tubular secretion of uric acid. Although hyperuricemia can occur in up to 64% of recipients, arthralgias only occur in 11% and acute gout is rare. Routine monitoring of uric acid levels is not recommended. In addition to close monitoring for symptoms of hepatotoxicity, patients receiving the 2-month, 60 dose rifampin-pyrazinamide regimen should undergo regular blood work (cell counts and aminotransferase levels) at baseline, 2 weeks, 4 weeks, 6 weeks, 8 weeks, and possibly 10 weeks depending upon the duration of the regimen.

4. **Pyrazinamide is not recommended during pregnancy**, as there is inadequate data on the teratogenicity of the drug.

Appendix 5.D:

Flouroquinolone Antibiotics Preventive Therapy Fact Sheet

The floroquinolones are a relatively new class of antibiotics that have shown good in-vitro and in-vivo activity against M. tuberculosis. Amongst second-line anti-tuberculosis drugs, they have emerged as the most important by virtue of the fact that they:

- Are relatively free of hepatotoxicity
- Have high levels of oral bio-availability
- Are found in respiratory secretions in higher concentrations than serum
- Are concentrated inside macrophages
- Are well tolerated
- Have an excellent safety record in long term therapy

For purposes of anti-tuberculosis treatment, the most important members of this class of antibiotics are levofloxacin (Levaquin ®) usually prescribed in a dose of 500 mg P.O. daily, and the newer generation fluoroquinolones, moxifloxacin (Avelox®) and gatifloxocin (Tequin®).

1. Levaquin® is usually taken on an empty stomach with an 8 oz. glass of water. It is recommended that antacids, multivitamins (with minerals), dairy products, calcium fortified juices, sucralfate (Carafate®) or didanosine (Videx®) not be taken 2 hours before or after the administration of Levaquin® (**Videx EC** can be taken at the same time).

2. **Levaquin is contraindicated in persons with a history of hypersensitivity to flouroquinolones. It is also contradindicated in persons with a history of tendonitis or tendon rupture associated with the use of fluoroquinolones.**

3. **The safety and efficacy of Levaquin® in children, adolescents (under the age of 18 years), pregnant women, and nursing mothers who have not been established.**

4. Levaquin® and other floroquinolones should be used with caution in patients with a known or suspected CNS disorder that may predispose to seizures or lower the seizure threshold.

5. In clinical trials, the most frequently reported adverse events occurring in less than 2% of the study population regardless of drug relationship, were: nausea 6.9%, diarrhea 5.3%, headache 4.9%, constipation 2.7%, dizziness 2.9%, insomnia 3.8%, abdominal pain 2.5% and dyspepsia 2.3%.

6. Dose adjustment is recommended for patients with impaired renal function.

7. The type and dose of fluoroquinolone used to treat active TB or LTBI, should be reviewed with a TB consultant.

Nurse's Worksheet - Monitoring of Patients with Active TB Disease

TX: DOT HRZ = 2m ± EMB, HR = 4m

*** B=baseline**

Active TX AST	B* ✓	Respiratory Smear Positive	Respiratory Smear negative	Non-respiratory
		• 2 weeks after start of treatment • then monthly	• then monthly • 2 weeks after start of treatment	• 2 weeks after start of treatment • then monthly
CBC, WBC, platelets	✓	• 2 weeks after start of treatment • then monthly	• then monthly • then monthly	• 2 weeks after start of treatment • then monthly
Sputum	✓	• 2-3 times weekly for 1 month - if smear positive, repeat until 3 consecutive negative smears on separate days • then monthly x 3 • at completion of treatment • at 6 & 12 m post-treatment	• monthly x 3months • at completion of treatment • at 6 & 12 m post-treatment	• at completion of treatment
CXR	✓	• after 1 and 2 months of treatment • at completion of treatment • 6 & 12 m post-treatment	• after 1 & 2 months of treatment • at completion of treatment; • 6 & 12 m post-treatment	• at completion of treatment
Visual Acuity		• Monthly EMB only	• Monthly EMB only	• Monthly EMB only
Symptoms	✓	• Monthly • 6 & 12 months post-treatment	• Monthly • 6 & 12 months post-treatment	• Monthly • 6 & 12 months post-treatment
Bilirubin	✓			
Creatinine	✓			
Urea	✓			
Glucose	✓			
HIV	✓			
Urinalysis	✓			

Appendix 7: Tuberculosis Treatment Letter for Patients

Date: **File Number:**
Name:
Address:

Phone No:
DOB: **Family Doctor:**

We are pleased that arrangements have been made for your **tuberculosis treatment**. Your family doctor has been notified of the anti-tuberculosis medication you are receiving.

Today, with modern medicine, **tuberculosis can be cured** in almost all instances provided, of course, you take your medication as ordered. TB medicines are safe, but once in a while they can cause side effects. If you notice any changes in your health or appearance while taking the medicine, tell your doctor or nurse. Most people don't have problems taking TB medicines.

Some changes that you should watch out for are:

- ☐ yellowish discoloration of skin
- ☐ dark tea-colored urine
- ☐ vomiting
- ☐ loss of appetite
- ☐ nausea
- ☐ changes in eyesight
- ☐ unexplained fever
- ☐ unexplained fatigue
- ☐ stomach cramps

You should:

- ☐ take your pills with milk, water, juice, soda or tea
- ☐ tell your doctor or nurse about any other medications you are taking
- ☐ tell your doctor or nurse if you are taking birth control pills
- ☐ **AVOID** excessive use of alcoholic beverages while being treated for TB
- ☐ make sure you eat healthy foods and get enough rest
- ☐ If you are taking **rifampin**, don't worry if your urine, saliva or tears turn orange. This is a normal side effect. You should avoid the use of soft contact lenses while using rifampin as this drug may cause them permanent discolouration.

Your medications are as follows:

Appendix 8: Monitoring Worksheet for Preventive Therapy

Nurse's Worksheet - Monitoring of Clients Taking Preventive Theraphy

Regimen	Age	AST or ALT	CBC Platelets WBC	Sputum	CXR	Symptoms of toxicity and disease activity
Baseline (all age groups)		All	All except INH	All	All	All
INH	**< 20**					monthly
	≥ 20 to 35	1,2 and 3 months after treatment start				monthly
	> 35	1,2,3, 6 and 9 months after treatment start				monthly
INH/Rifampin	**< 20**					monthly
	≥20 to 35	1,2 and 3 months after treatment start	1, 2 and 3 months after treatment start			monthly
	> 35	1,2,3,4 and 6 months after treatment start	1, 2, 3, 4 and 6 months after treatment start			monthly
Rifampin/PZA	**> 15 < 20**	2, 4 and 8 weeks after treatment start	2, 4 and 8 weeks after treatment start			2, 4 and 8 weeks after treatment start
	≥20 to 35	2, 4 and 8 weeks after treatment start	2, 4 and 8 weeks after treatment start			2, 4 and 8 weeks after treatment start
	> 35	2, 4 and 8 weeks after treatment start	2, 4 and 8 weeks after treatment start			2, 4 and 8 weeks treatment start
Rifampin	**< 20**					monthly
	≥ 20 to 35	1,2,3 and 4 months after treatment start	1,2,3 and 4 months after treatment start			monthly
	> 35	1,2,3 and 4 months after treatment start	1,2,3 and 4 months after treatment start			monthly

Appendix 9: Preventive Therapy Letter to Patient

Date: **File Number:**
Name:
Address:

Phone No:
DOB: **Family Doctor:**

We are pleased that arrangements have been made for your treatment to **prevent tuberculosis** (TB). TB drugs are safe, but like any medicine they sometimes cause side effects. Tell your doctor or nurse right away if you see any changes in your health or appearance while taking the medicine. Most people don't have problems with TB medicine.

Some changes that you should watch out for are:

- ☐ yellowish discoloration of skin
- ☐ dark tea-colored urine
- ☐ vomiting
- ☐ loss of appetite
- ☐ nausea

If symptoms are severe and you can't reach your doctor or nurse then stopping the medication until you are seen by them is okay.

It is easier to remember to take your pills if you take them at the same time every day. It is best to take the pills on an empty stomach. Here are some other suggestions:

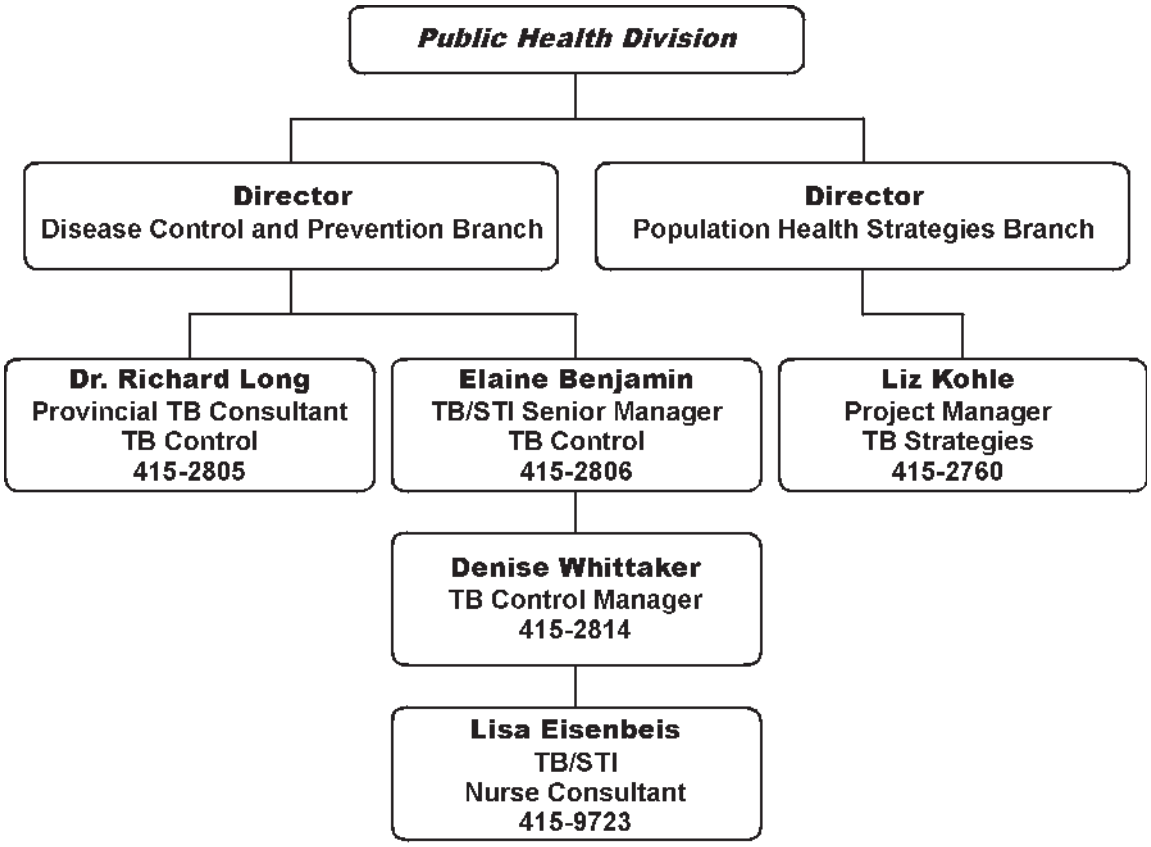
- ☐ Take your pills at least 30 minutes before meals, or at least one hour after meals, or at bedtime.
- ☐ Take the pills with milk, water, juice, soda, coffee or tea.
- ☐ Eat healthy food and get enough rest.
- ☐ **AVOID** excessive use of alcoholic beverages.
- ☐ Tell your doctor or nurse if you are taking birth control pills or if you become pregnant or about any other medications you are taking and before beginning any new ones.
- ☐ If you are taking **rifampin**, don't worry if your urine, saliva or tears turn orange. This is a normal side effect. You should avoid the use of soft contact lenses while using rifampin as this drug may cause them permanent discolouration.

If you are planning to move, please notify your community health nurse so that arrangements can be made to continue your medication without interruption in your new community.

THIS MEDICATION MUST BE TAKEN AS DIRECTED WITHOUT FAIL to ensure you have adequate protection.

Your medications are as follows:

Appendix 10: TB Program Within Alberta Health and Wellness



Note: The contacts listed above can be accessed through the RITE Line at 310-0000

Appendix 11: Important Contact Names and Phone Numbers

Please add local (regional) information as appropriate.

Regional Contacts

Regional TB Co-ordinator:
Regional TB Educator:
Contacts for TB supplies
- Mantoux solution (PPD):
- Specimen Containers for AFB:
- BCG vaccine:
- Forms:
- TB Pamphlets and other resources:

Provincial Contacts

Dr. Richard Long
Provincial TB Consultant — Phone: 415-2805 — e-mail: richard.long@gov.ab.ca

Elaine Benjamin
TB/STI Senior Manager — Phone: 415-2806 — e-mail: elaine.benjamin@gov.ab.ca

Denise Whittaker
TB Control Manager — Phone: 415-2814 — e-mail: denise.whittaker@gov.ab.ca

Lisa Eisenbeis
TB/STI Nurse Consultant — Phone: 415-9723 — e-mail: lias.eisenbeis@gov.ab.ca

Shirley Chorney
Reporting Officer, TB Control — Phone 415-2808 — e-mail: shirley.chorney@gov.ab.ca

Liz Kohle
Educational support and resources — Phone: 415-2760 — e-mail: elizabeth.kohle@gov.ab.ca

The contacts listed above can be accessed through the RITE Line at 310-0000.

Ordering supplies and Resources—each region has individuals designated to order these items.

Mantoux solution:	Order through Provincial Vaccine Depot
Specimen containers for AFB:	Order from Provincial Laboratory
BCG vaccine:	Order through Provincial Vaccine Depot—special order
Provincial referral forms:	Order through TB Control
Tuberculin Skin Test rulers:	Alberta Lung Association 1-800-661-5864
Print Resources (see list to follow):	Fax 427-3023

Appendix 12: Forms

Following the directions on how to fill out the form, is a copy of each form.

12.A Directly Observed Therapy Record

This form can be used as a worksheet to monitor medication for individuals on daily or twice weekly treatment.

Information regarding how to fill the form out can be found at the top of the form.

The current prescription for TB medications should be entered in the upper right hand corner of the form. Please verify that the medications supplied match the prescription you have.

"Test results" includes results of any monitoring done such as bloodwork, audiology screening, etc.

The comment section is free for you to use to expand on any concerns you may have regarding compliance, adverse reactions, etc.

The form may be returned to TB Control once it is completed at the end of each month, or you may choose to transfer the appropriate information to the Treatment Record (see page 6-31).

The DOT form can be used to report compliance with medication, or the information can be transferred to the Treatment Record and Follow-up form.

Directly Observed Therapy Record

The following patient has been placed on ***Directly observed therapy*** under your supervision. Please indicate the dates (in the parentheses) you have given and observed the medications(s) taken, by writing your initials on the appropriate date. If the medication(s) were taken on a certain date and swallowing was not observed, please indicate ***not observed*** on the appropriate date.

Please return this completed sheet by the end of each month to:

Disease Control and Prevention
Tuberculosis Control
10025 Jasper Avenue
Box 1360 Stn Main
Edmonton, Alberta
T5J 2N3

Prescription:

TB file number:

NAME:			Month and Year:			
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**
( )	( )	( )	( )	( )	( )	( )
( )	( )	( )	( )	( )	( )	( )
( )	( )	( )	( )	( )	( )	( )
( )	( )	( )	( )	( )	( )	( )
( )	( )	( )	( )	( )	( )	( )

** If two doses of medication are missed, please notify the Nurse at TB Control:*
Ph: (780) 422-2444 Fax: (780) 422-5149

Contact Name and Phone Number: _____

Test Results: _____

Comments: _____

12.B Treatment Record and Follow-up

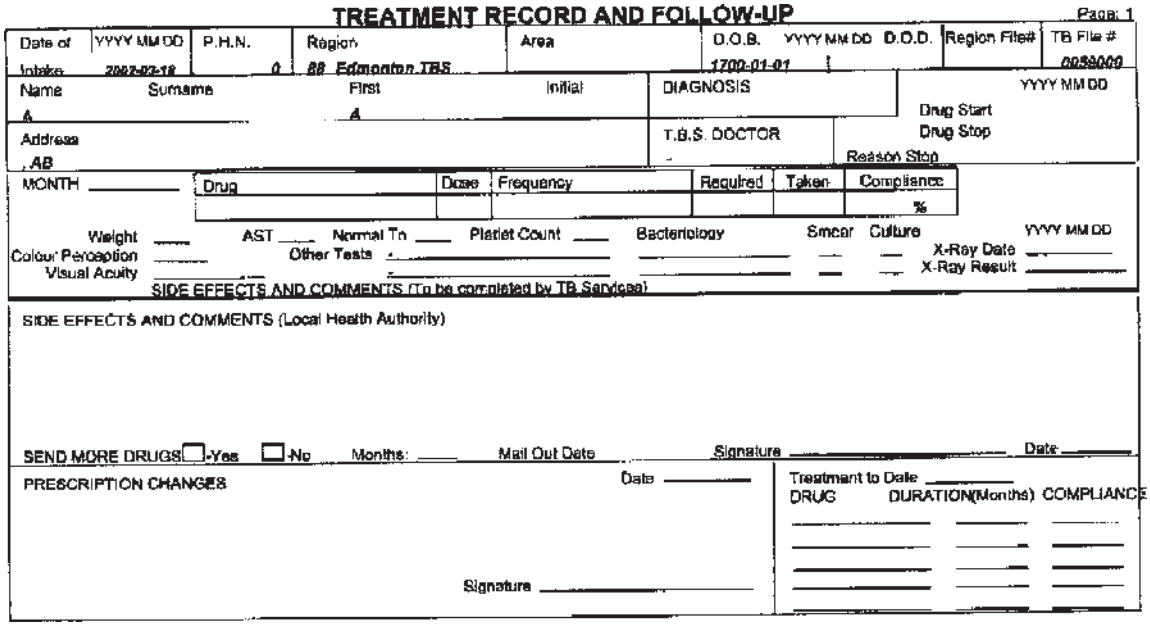
The Treatment Record and Follow-up form is sent along with medications supplied to public health staff by TB Control. It is used to report compliance with medications and any monitoring which has been done in relation to side effects.

This form is generated on computer by the TB Registry, and will be routinely updated as information is received from the field. When information has been submitted in a timely manner, it will provide public health staff with an up to date record of any treatment and concerns.

Please fill in any monitoring activity for the month of the report, according to the recommendations for the specific medications being taken. For example, if the client is taking Ethambutol and vision screening has been done, report the results under 'Visual Acuity". When reporting AST results, remember to include the normal value as reported by the lab.

Request new drugs as needed, and check for prescription changes.

This form is sent to TB Control at the end of each month and can be used to report compliance in place of the Directly Observed Therapy form.



TREATMENT RECORD AND FOLLOW-UP

Page: 1

Date of Intake: YYYY MM DD 2002-02-18	P.H.N. 0	Region 88 Edmonton TBS	Area	D.O.B. YYYY MM DD 1700-01-01	D.O.D.	Region File#	TB File # 0050000

Name Surname: A First: A Initial

Address: AB

DIAGNOSIS

T.B.S. DOCTOR

YYYY MM DD
Drug Start
Drug Stop
Reason Stop

MONTH _____

Drug	Dose	Frequency	Required	Taken	Compliance %

Weight ____ AST ____ Normal To ____ Platelet Count ____ Bacteriology Smear Culture

Colour Perception ____ Other Tests ____

Visual Acuity ____

YYYY MM DD
X-Ray Date ____
X-Ray Result ____

SIDE EFFECTS AND COMMENTS (To be completed by TB Services)

SIDE EFFECTS AND COMMENTS (Local Health Authority)

SEND MORE DRUGS ☐ Yes ☐ No Months: ____ Mail Out Date ____ Signature ____ Date ____

PRESCRIPTION CHANGES

Date ____

Signature ____

Treatment to Date ____

DRUG	DURATION(Months)	COMPLIANCE

Original Copy of Treatment Record
and Follow-up Form here

12.C Tuberculosis Referral Form

This form is used by staff in the regions to:

- refer a client for chest radiograph
- refer a client to Tuberculosis Control for any reason or communicate with Tuberculosis Control regarding information or recommendations

Information from this form is entered into the TB database and is transferred onto any documents relating to this client. Therefore, it is very important that as much accurate information as possible be collected. Ensure that the client understands the *Health Information Act* disclaimer on the form.

Check box in upper right hand corner for radiograph requisition.

Consider all fields indicated with a * to be mandatory fields.

Helpful information for filling this form out:

* **Date of referral**: year/month/day you are filling in the form.

* **P H Number:** Personal Health Number – this is the universal patient identifier.

* **Region**: Name of Region forwarding information—this is usually the region in which the client lives, except perhaps in the case of jails and drug rehabilitation an detox centres.

  Area: Name of office or sub-office within each region that is providing service to the client.

* **D.O.B.** (Date of Birth)/ **D.O.D.** (Date of Death): Year/month/day.

  Other File #: A number which would be assigned by Regional staff to aid in regional filing systems.

  TB File #: Number assigned at Tuberculosis Control which can be found on all forms and correspondence relating to client. This number should be on all lab Requisitions, radiology reports, and available for telephone queries.

* **Name**: Client's last name first (Please print clearly). First name should be the usual name the client uses. Provide entire middle name if known (in case of duplications).

  Other (maiden, alias): Surname prior to marriage or other name the client may have used which might help Tuberculosis Control locate records.

  Sex: Male/female.

* **Address**: Client's usual *permanent* place of residence (not correctional institute, residential school, etc.). This will assist in locating an individual who has been discharged from prison, detox centres, etc.

***Postal Code**: helps to identify area client is from.

  Phone number: Please provide if available.

  Other phone number: Example—work, neighbour, etc.

Marital status: Choose one.

* **Ethnic origin**: Choose one. If "other", specify only Caucasian or non-Caucasian.

* **Aboriginal band and treaty number**: Name and number of band in which client is registered.

* **Country of birth**: Indicate country client was born in (including Canada).

* **Date of arrival in Canada**: Provide regardless of length of time since immigration.

Occupation: Job title, and type of work if possible (e.g. Continuing care nurse, clerical in correctional facility).

Next of kin and phone number: Name and phone number of closest adult relationship. List relationship if known. This will assist you to contact the client if he/she moves without notice.

Family/referring doctor, address, postal code and phone number: If the client has a family physician, enter the information here. If not the MOH becomes the referring doctor. Please be specific, to enable Tuberculosis Control staff to discuss/consult with family physician, and to contact the physician in the event preventive therapy is recommended.

Copy to other (with address and postal code): Indicate here if health care facility (occupational health), facility, medical services, correctional institute etc. require a copy of the update.

* **Tuberculin Tests**: Space for 3 tuberculin results.

* **BCG History**: If yes, indicate the year, and indicate whether scar visible.

Immunosuppressed: Indicate reason for immunosuppression if applicable (medication or disease). If client objects to this information on form, or if reason is "HIV positive client", indicate only "yes" on form, and obtain permission from client to phone Tuberculosis Control with this information.

Previous TB and date: If client knows this information, or if documentation is available indicating previous disease.

Province/Country: Where the diagnosis was made. This helps assess whether treatment would have been adequate.

Previous medication: Yes or No. If yes, was it for active disease or prevention (can be both).

Contact: If this client is a contact of a case, provide as much information as available about the source case and type of contact (association).

* **Reason for referral**: See reverse side of form for details. Choose one (primary reason).

Additional information: Any other pertinent information or comments on client that may affect his/her follow-up. Indicate symptoms, medications, any medical conditions, travel outside country, etc. If there are no symptoms, indicate this as well.

Region stamp: Name and mailing address.

* **Signature of Health Nurse/Authority**: Signature of health care worker.

Attention Radiology Dept:
Forward previous chest x-rays with the current one for comparison.

☐ X-Ray Request

TUBERCULOSIS REFERRAL FORM

Disease Control & Prevention, TB Control
10025 Jasper Avenue
Box 1360 Stn Main
Edmonton AB T5J 2N3
Phone: (780) 422-2444 Fax: 422-5149

"Freedom of Information and Privacy Legislation" section must be read by or to client.

Freedom of Information and Privacy Legislation	*The personal information collected on this form is used for the purpose of enabling TB Control to carry out a screening program, and is collected under the authority of the Alberta Public Health Act.* *Questions about the use and collection of this information can be directed to: Director, TB Control, Edmonton (see above for address/phone#).*

Date of Referral	YYYY MM DD	P.H. Number	Region	Area	D.O.B. (YYYY MM DD) D O.D	Region File #	TB File #
Name Surname		First	Middle	Other (Maiden, Alias)		Sex ☐M ☐F	
Address				Postal Code	Phone Number	Other Phone #	
Marital Status ☐M ☐S ☐D ☐W ☐C/L ☐Sep.		Ethnic Origin ☐Metis ☐Inuit ☐Tr.	Other ☐(Specify)	Aboriginal Band		Treaty#	
Country of Birth	Arrival in Can. YYYY MM DD	Occupation		Next of Kin		Phone #	
Family/Referring Physician		Address		Postal Code		Phone #	
Copy to Other		Address				Postal Code	
Tuberculin Tests	MM YYYY MM DD	MM YYYY MM DD	MM YYYY MM DD	BCG History ☐unknown ☐No ☐Yes	YYYY MM DD	Scar ☐Yes ☐No	
Immunosuppressed (Specify)		Previous T.B. ☐Yes ☐No	Date	Prov/Country	Previous Medication ☐Yes ☐No ☐Active ☐Prevent		
Source Case Name	File No.	YYYY MM DD	Association ☐Close ☐Casual	Relationship to Source			
CONTACT:							
REASON FOR REFERRAL	*(Please See Reverse Side For Details)* Enter Referral Code From Reverse Side of Form: ____						

Explain Reason for Referral & Provide Additional Information	Region Stamp

Signature of Health Nurse/Authority

REASON FOR REFERRAL

Please select the **primary reason** for referral if more than one applies and transverse to referral section:
If forwarding x-rays, please include previous for comparison.

IMMIGRANT
- ☐ **101** Landed (Inactive TB Status)
- ☐ **102** Newcomers' Clinic
- ☐ **103** Student Visa
- ☐ **104** Refugee
- ☐ **105** Applicant Landed Status
- ☐ **106** Vistor/Working Visa

EMPLOYMENT Occupation: _____ Employer: _____
- ☐ **201** Acute Care Hospital
- ☐ **202** Long Term Care Hospital
- ☐ **203** Correctionals
- ☐ **204** Detox / Rehab
- ☐ **205** Child Care Workers
- ☐ **206** Private Lab
- ☐ **207** Medical Examiners
- ☐ **208** Other Employment

SCHOOL SCREENING
- ☐ **301** Grade School
- ☐ **302** Post Secondary
- ☐ **303** Household Review of Positive Reactors

INSTITUTIONAL LIVING Institution/facility: _____
- ☐ **401** Admission LTC
- ☐ **402** Long Term Care Follow-up
- ☐ **403** Correctional
- ☐ **404** Remand
- ☐ **405** Detox / Rehab
- ☐ **406** Psychiatric Hospital
- ☐ **407** Communal Living

SYMPTOMS
- ☐ **501**

CONTACT
- ☐ **601**

IMMUNOSUPPRESSED
- ☐ **701** Renal Failure
- ☐ **702** Transplant
- ☐ **703** Medication
- ☐ **704** Other Diseases

OTHER
- ☐ **901** Lab
- ☐ **902** Post Mortem
- ☐ **903** TBS Request Other
- ☐ **904** TBS Survey
- ☐ **905** Old Case Review
- ☐ **906** Radiology Report
- ☐ **907** Pathology
- ☐ **999** Other (must be accompanied by explanation on previous page)

12.D Tuberculosis Update Form

This form is initiated at Tuberculosis Control and sent to local health offices to communicate recommendations, or to request specific follow-up in the community. It is generated using information provided to Tuberculosis Control on the TB Referral form, or information received from other sources (e.g. facility if client has been hospitalized).

It is only as accurate as the information supplied at the time of referral. If errors are recognized, please correct and return to Tuberculosis Control.

Additional information found on this form includes:

Contact: If the client is a contact of a diagnosed case, this will provide information about the source case file number and date of contact. To ensure confidentiality, names will not be given.

Source Case Sputum: Will indicate whether the source case is smear or culture positive or negative. (this is useful information for decisions regarding priorities for contact tracing).

Association: Close or casual, and relationship to the source case—to assist with decisions around contact tracing.

TB Doctor: Indicates name of TB physician reviewing the case.

TB Diagnosis: Indicates if this client has been diagnosed with active or inactive TB (culture presently or previously positive for AFB), is suspected of having active TB disease (awaiting culture results, or clinical diagnosis only) or presumed inactive (never diagnosed with TB, but radiographs indicative of old disease).

Treatment Adequate: Yes or no will be indicated. Medications used, and length of time taken will be specified.

Preventive Therapy: Indicates if preventive therapy was recommended and the reason for the recommendation, as well as whether it was accepted or not.

Reason Stopped: The reason this client is no longer on preventive medication. This will indicate such things as refusal, adverse reactions, treatment complete, etc.

Non-case: This indicates any case that does not have a diagnosis of *M. tuberculosis*. It may include localized fibrosis, healed primary complex, atypical Mycobacteria, BCG complication, etc. It will also indicate whether the client is a contact of known case.

Action: Follow-up recommendations will be checked in this column, with the date required.

Radiograph: Complete the TB Referral Form (as a requisition form) and refer client to nearest radiograph facility. These radiographs will then be forwarded to Tuberculosis Control or the appropriate clinic.

Sputum: Obtain 3 samples whenever possible.

Urine: Collect urine for AFB.

CBC/Platelets: If complete blood count is required, this will be circled. If only platelets are needed this will be indicated. The local health office sends client to lab with requisition for work needed. Indicate copy to Dr. Richard Long to ensure results are also forwarded to TB Control.

AST: Liver function test (AST or ALT)—Send client to lab as above, and ensure copies sent to TB Control.

Tuberculin: Client requires tuberculin skin test—report result to Tuberculosis Control.

Initiate Treatment: This indicates that the recommendation from the TB physician in to begin treatment, and the date of the recommendation.

Continue Treatment: Confirms that recommendation for treatment is still current, and that client should continue.

Symptom Inquiry: Question the client to see whether any of the symptoms relating to TB are present. (See page 2-6).

Visual Tests: Visual acuity and colour perception both need to be done. This recommendation is usually only for clients taking Ethambutol.

Report Compliance: Determine the client's compliance with taking medications (either current treatment or past). Report compliance to Tuberculosis Control by filling out the preventive therapy or treatment record and follow up form (see page 6-42 or 6-31) and forwarding as requested.

Appointment: Indicates the client has (or needs) an appointment at TB clinic to see a TB physician.

Annual Follow-up: This is a common recommendation for some clients who refuse, or cannot tolerate preventive therapy. It indicates that radiograph and sputum need to be done yearly with this client.

Other: Indicates if any other recommendations are being made.

No Further Follow-up is necessary unless symptoms or further exposure: Indicates that client does not require any routine follow-up, but that referral should be made if indicated in future.

X-ray Date: Date the last radiograph was taken. The TB Physician will indicate whether the radiograph is normal and whether stable, deteriorated, improved or cavitary.

X-ray Location: This is the radiology department where the radiograph was done, and usually where the radiograph is stored after being seen by the TB Physician.

Sputum Date: This will indicate when the sputum was collected, and whether the lab report indicated smear and culture negative or positive for AFB.

TB Services Consultation: This area is for information from any area that needs expansion, as well as the TB physician's dictation of recommendations/findings. This area will also indicate who else received a copy of the form.

Information on this form is only as accurate as the information that has been supplied to TB Control.

Disease Control & Prevention, TB Control
10025 Jasper Avenue
Box 1360 Stn Main
Edmonton AB T5J 2N3
Phone: (780) 422-2444 Fax: 422-5149

TUBERCULOSIS UPDATE FORM

Date of Intake YYYY MM DD	P.H.N.	Region	Area	D.O.B. YYYY MM DD	D.O.D.	Region File#	TB File #
1997-07-17	*0*			*1700-01-01*			*0601622*

Name Surname	First	Middle	Other (Maiden, Alias)	Sex ☐-M ☐-F

Address Street	City	Province	Postal Code	Phone Number	Other Phone#
		AB			

Marital Status ☐-M ☐-S ☐-D ☐-W ☐-C/L ☐-Sep.	Ethnic Origin ☐-Metis ☐-Inuit ☐-Tr.	Other ☐-(Specify)	Aboriginal Band	Treaty#

Country of Birth	Arrival in Canada	Occupation	Next of Kin	Phone #

Copy to Family/Referring Physician	Address	Postal Code

Copy to Other	Address	Postal Code

Tuberculin Tests	YYYY MM DD MM	YYYY MM DD MM	YYYY MM DD MM	Converter YYYY MM DD ☐	BCG History YYYY MM DD Scar ☐-Yes ☐-No

Immunosuppressed (Specify)	Previous T.B. Date ☐-Yes ☐-No	Prov/Country	Previous Medication ☐-Yes ☑-No ☐-Active ☐-Prevent.

REASON FOR REFERRAL: Referral Date:

Source Case File No.	Date	Source Case Sputum Smear: Culture:	Association ☐-Close ☐-Casual	Relationship to Source

CONTACT:

Additional Information

T.B. Doctor
T.B. Diagnosis
☐-Active ☐-Suspect Active
☐-Inactive ☐-Presumed Inactive
TREATMENT ADEQUATE? ☐ Yes ☐ No
Specify

Preventive Therapy:
☐-Recommended Accepted
Reason Stopped
TREATMENT ADEQUATE? ☐ Yes ☐ No
Specify

NON-CASE
☐-Contact

ACTION — Due Date YYYY MM DD
- ☐ X-Ray Chest
- ☐ Sputum
- ☐ Urine
- ☐ CBC/Platelets
- ☐ AST
- ☐ Tuberculin
- ☐ Initiate Treatment
- ☐ Continue Treatment
- ☐ Symptom Enquiry
- ☐ Visual Tests
- ☐ Report Compliance
- ☐ Appointment
- ☐ Annual Follow-up
- ☐ Other

☐ No further follow-up is necessary unless symptoms or further exposure.

☐ No Copies ☐ File Only

X-Ray Date: Normal ☐Yes ☐No ☐-Stable ☐-Improved
X-Ray Location: ☐-Deteriorated ☐-Cavitary
Sputum Date: Sputum Lab#: Smear: Culture:

TB Control Consultation

This assessment does not preclude the need for investigation or intervention for disorders other than tuberculosis.

Signature Date

1996.03.14 TB300

12.E Recommendation for Preventive Therapy

This form is used by TB Control to indicate the recommendation for preventive therapy for this client.

- Copies are sent to the family physician and to local public health offices when this recommendation is made.
- It is then up to the family physician, in consultation with the Public Health Nurse and the client, to decide if the recommendation will be followed.
- Once this decision is made, the form should be returned to TB Control, indicating whether or not the recommendation for preventive therapy will be accepted, and if not, the reason for the refusal.

This form is generated on the computer with information supplied to TB Control at the time of referral.

This person has been recommended preventive therapy by Tuberculosis Control Doctor: This will indicate the name of the TB Doctor making the recommendation, as well as the reason for making it.

If in agreement with the above recommendation: This section is for the family physician **and** the Public Health Nurse to fill in.

Family Doctor signature: Indicates the physician's agreement with the recommendations from Tuberculosis Control.

Public Health Nurse signature: Indicates the Public Health Nurse has discussed preventive therapy with the client, the client is aware of the recommendation, and has agreed to it.

Pre-INH AST/ALT: AST or ALT needs to be done prior to administration of INH, to ensure liver enzymes are normal before initiation of treatment. This also serves as a baseline when monitoring for the development of liver toxicity in clients on this medication.

Weight: This is needed to ensure correct dose of medication.

Symptoms: Does this client have symptoms suggestive of TB disease at this time?

Sputum submitted: Yes or No.

Hold preventive therapy for culture results: Yes or No—if there is any concern that this client might have active TB, check this box to ensure treatment with 1 drug is not started prior to ruling out active disease.

Return to: Indicates where the signed form should be sent.

If preventive therapy is not taken, follow-up: This section will indicate what follow-up is needed if decision is made not to take preventive therapy.

Current treatment: This section is for use by TB Control.

c.c.: copies of this form were also sent to…

Indications for preventive therapy: A reminder for those involved what the indications for preventive therapy would be.

Information on this form is only as accurate as the information that has been provided to TB Control.

RECOMMENDATION FOR PREVENTIVE THERAPY

Disease Control & Prevention, TB Control
10025 Jasper Avenue
Box 1360 Stn Main
Edmonton AB T5J 2N3
Phone: (780) 422-2444 Fax: 422-5149

Date of Intake (YYYY MM DD)	P.H.N.	Region	Area	D.O.B. YYYY MM DD	D.O.D.	Region File #	TB File #
1997-07-17	0			1700-01-01			0601622

Name: Surname	First	Middle	Other (Maiden, Alias)	Sex ☐-M ☐-F

Address: Street	City	Province	Postal Code	Phone Number	Other Phone#
		AB			

Copy to Family/Referring Physician	Address	Postal Code

This person has been recommended preventive therapy by TBS Doctor: _____ _____ TBS Doctor Signature

Reason: _____ Date: _____

If in agreement with above recommendation,
Please sign: *Family Doctor Signature:* _____ *Date:* _____

Public Health Nurse Signature: _____ *Date:* _____

Pre - Meds AST/ALT: _____ Normal to: _____
Weight (kg): _____

Symptoms: ☐ Yes ☐ No
Sputum submitted: ☐ Yes ☐ No
Hold preventive therapy for culture results: ☐ Yes ☐ No

Return To:
Alberta Health
Disease Control and Prevention
10025 Jasper Avenue
Box 1360 Stn Main
Edmonton, Alberta T5J 2N3

If preventive therapy is not taken, follow up: _____

Current treatment:

Date: _____

Signature: _____

CC:

Indications For Preventive Therapy

- contacts of infectious cases
- skin test converters (recorded negative within two years)
- lung lesions, never treated or inadequately treated
- positive reactors under age of 36
- positive reactors at high risk due to:
  - HIV infection
  - poorly controlled diabetes
  - organ transplant
  - cancer
  - renal disease
  - IV drug users
  - corticosteroid therapy (long-term use)
  - foreign born from high prevalence countries

NOTE: Persons who are non-reactors and are severely immune suppressed by HIV infection, corticosteroids, transplantation, immune suppression or at high risk because of lifestyle should be considered for preventive therapy once active disease has been ruled out with sputum culture and chest x-ray.

96.01.01 TB200

12.F Preventive Therapy

This form is used primarily by public health staff to communicate with TB Control regarding preventive therapy activity. It will accompany medication sent to health regions for distribution to clients, and is used to:

- provide a report of drug compliance, possible toxicity and adverse reactions to TB Control
- order further medication
- provide a case summary of the completed treatment regimen

Updated copies of the preventive therapy form are forwarded to TB Control every 2 months.

TB Control will fill in the top portion of the form, including identifying information and information about recommended preventive therapy, with information from their files.

If any information is missing, it is because they have not yet received it, (for example, AST result, weight, medication start date).

Pre-INH AST: Medication should not be started until this value is known. If high, consult with TB Control or the TB Clinic, and inform the family doctor before having client start on medication.

Normal to: This information (given as a range) will be found on the lab report, and is important to note as it tells whether the value is truly normal or not.

Meds Started: TB Control does not have this information until provided by the staff monitoring medications.

Meds Stopped: At the completion of treatment (see page 5-8), public health staff will need to fill this in so that it can be entered into the database.

Date: Year, Month, Day.

Drug, Dose, Frequency: This will usually be completed by TB Control.

Required: This is the number of doses which **should have been taken** since last report.

Taken: This is the number of doses **actually taken** since last visit.

Compliance: TB Control will complete this once information from previous months is received.

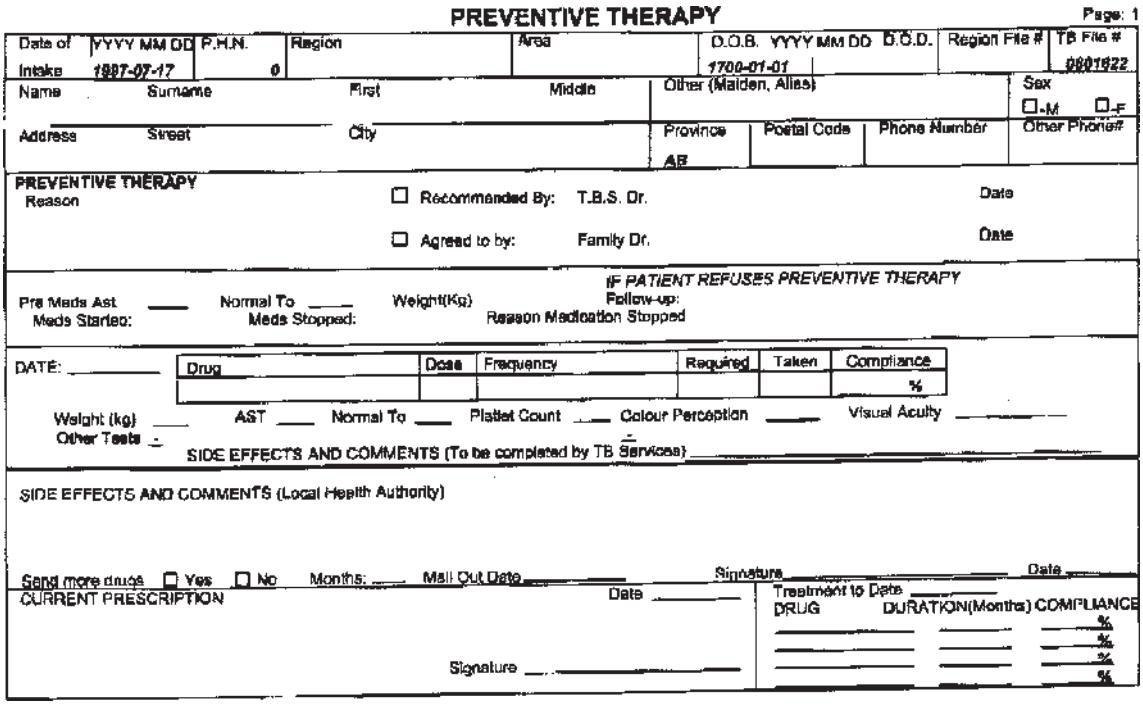
Weight, AST, Platelet Count, etc: These are filled in whenever applicable.

Side-effects and comments: This space is for health staff to indicate any concerns, adverse reactions, excellent or poor compliance, etc.

Send More drugs: Be sure to check Yes or No, and add how many month's supply you need (not more than 2 or 3).

Current prescription: Check this against medications on hand—sometimes the prescription changes according to culture sensitivities or adverse reactions to medication.

Treatment to date: Summary of duration of medications and client compliance.



PREVENTIVE THERAPY

Page: 1

Date of Intake YYYY MM DD	P.H.N.	Region	Area	D.O.B. YYYY MM DD	D.C.D.	Region File #	TB File #
1997-07-17	0			1700-01-01			0801922

Name Surname	First	Middle	Other (Maiden, Alias)	Sex
				☐-M ☐-F

Address Street	City	Province	Postal Code	Phone Number	Other Phone#
		AB			

PREVENTIVE THERAPY
Reason

☐ Recommended By: T.B.S. Dr. Date

☐ Agreed to by: Family Dr. Date

Pre Meds Ast ____ Normal To ____ Weight(Kg)
Meds Started:
Meds Stopped:

IF PATIENT REFUSES PREVENTIVE THERAPY
Follow-up:
Reason Medication Stopped

DATE: _____

Drug	Dose	Frequency	Required	Taken	Compliance
					%

Weight (kg) ____ AST ____ Normal To ____ Platlet Count ____ Colour Perception ____ Visual Acuity ____
Other Tests ____

SIDE EFFECTS AND COMMENTS (To be completed by TB Services) ____

SIDE EFFECTS AND COMMENTS (Local Health Authority)

Send more drugs ☐ Yes ☐ No Months: ____ Mail Out Date ____ Signature ____ Date ____

CURRENT PRESCRIPTION Date ____

Signature ____

Treatment to Date ____

DRUG	DURATION(Months)	COMPLIANCE
		%
		%
		%
		%

Original Copy of Preventive Therapy Form here

12.G Tuberculosis Contact List/Master Contact List

This form is used to:

- initiate follow-up investigation of contacts
- identify those persons who need surveillance because of association with an infectious case of tuberculosis

This form is used to provide information about contacts of active cases of tuberculosis to TB Control or the TB Clinic, in order to assist in the co-ordination of contact tracing in the community.

If the client is hospitalized, the form will be initiated by staff in the facility. A copy of the pertinent information will be faxed to all applicable areas as soon as practical.

The form is also used to communicate the results of contact follow-up and any further contact information to TB Control. Attempts should be made to complete this form and return to TB Control or the TB Clinic within 30 days. **New** contact information should be communicated within 1 week of receipt of the information.

Source Case and DOB: This is the person in hospital or in the community who has been diagnosed with TB.

TR# (treaty number): If patient is aboriginal with treaty status.

Address and Telephone Number: Home address and phone as given by patient.

Parent/Spouse: Next of kin.

Place of Employment: For contact follow-up.

Hospital: The facility where the patient was interviewed.

Admission Date: If patient was admitted to hospital.

Attending Physician: Physician under which the patient was admitted.

Diagnosis: Pulmonary or non-pulmonary status.

Bacillary Status:

Smear positive

- not necessarily TB (may be non-tuberculous mycobacterium)
- if it is TB it will be infectious

Culture positive

- may be less infectious, but definitely TB.

Non-infectious

- most likely non-pulmonary TB.

Contacts Reported by Phone and Date: Yes or no.

Identification of Contacts: This will indicate who interviewed the client to get a list of the known contacts, and the date the interview was done.

Recommendations (Follow-up Investigations): This will contain information from TB Control staff to assist Public Health nurses in their follow-up.

Contact Information: Information is divided into close and casual, household and non-household contacts. If any section here is circled, (e.g., DOB), attempt to provide the information as soon as possible.

Tuberculin status: Dates of tuberculin skin testing should be entered, along with results. If previous positive result is known, this should be recorded.

Comments: Look here for more direction from TB Control if further testing is needed.

Alberta
SOCIAL SERVICES
AND COMMUNITY HEALTH

TUBERCULOSIS CONTACT LIST

TUBERCULOSIS SERVICES

(CONTINUED ON REVERSE)

SOURCE CASE	D.O.B.	TR #	ADDRESS	TELEPHONE NO.	PARENT/SPOUSE
PLACE OF EMPLOYMENT		HOSPITAL	ADMISSION DATE DAY MO. YR.	ATTENDING PHYSICIAN	
DIAGNOSIS	BACILLARY STATUS ☐ SMEAR POSITIVE ☐ CULTURE POSITIVE ☐ NON INFECTIOUS			CONTACTS REPORTED BY PHONE ☐ YES ☐ NO DAY MO. YR.	HEALTH AUTHORITY

IDENTIFICATION OF CONTACTS:

INTERVIEWER ____ DAY MO. YR.

POSITION ____ CL = CLOSE, CAS = CASUAL

RECOMMENDATIONS

FOLLOW UP INVESTIGATIONS: ....

SIGNATURE ____ DAY MO. YR.

A. Household: / **TUBERCULIN STATUS**

NAME	ADDRESS & TELEPHONE NO	DOB	RELATIONSHIP	CL CAS	INITIAL DATE	INITIAL RESULTS	B.C.G. DATE	REPEAT DATE	REPEAT RESULTS	FILE #	X-RAY REC'D YES NO	X-RAY REC'D DATE	PUBLIC HEALTH NURSE'S COMMENTS
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
B. Relatives:													
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		
				☐ ☐							☐ ☐		

(OTHERS MAY BE ADDED AT END)

MAILED TO:	DATE DAY MO YR	COMMUNITY HEALTH NURSE'S SIGNATURE	RETURNING DATE DAY MO. YR.

SSCh 653 (82/2)

C. Co-worker & Classmates:

NAME	ADDRESS & TELEPHONE	DOB	RELATIONSHIP	CL CAS	INITIAL DATE	INITIAL RESULTS	DATE	REPEAT DATE	REPEAT RESULTS	FILE #	X-RAY REQ'D YES NO	X-RAY REQ'D DATE	PUBLIC HEALTH NURSE'S COMMENTS
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		

D. Recreational Associates & Friends:

				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		

E. Travel Companions:

				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		

F. Community Associates & Friends:

				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
				☐☐							☐☐		
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				☐☐							☐☐		

Appendix 13: Interview Checklist

The following information should be considered as part of any patient interview, in preparation for development of a contact investigation list.

- ☐ Client's name
- ☐ Client's home address and phone number or names of shelters
- ☐ Location and date of interview
- ☐ Household members or others present at interview (name, age, relationship to patient, addresses)
- ☐ Client's symptoms and approximate date when each started
- ☐ Places client has been since symptoms began
  - ☐ Household or residence
  - ☐ Work or school
  - ☐ Leisure or recreation activities
- ☐ Description of client's daily routine
  - ☐ Transportation to and from work
  - ☐ Type of work
  - ☐ Daytime/evening/night-time/weekend activities
- ☐ Other regular activities (not daily)
- ☐ Other sites visited less regularly during period of infectiousness (eg. trips, vacations, holiday activities)
- ☐ Contacts identified (organized by site)
  - ☐ Household members (especially those who share the same sleeping space)
  - ☐ Frequent guests or visitors to the home (including visitors of other family members)
  - ☐ Co-workers, school classmates
  - ☐ Friends and other social contacts
  - ☐ Girlfriends, boyfriends or sexual partners

Appendix 14: Resources

These resources can be ordered from the AH&W warehouse

TB01 Why take medicine? To prevent TB

TB02 Tuberculosis is Back (pamphlet)

TB03 Tuberculosis Teaching Package

TB04 Tuberculosis? Please Tell me More (coil bound)

TB05 TB Worldwide (Poster)

TB06 Canadian Tuberculosis Standards

TB07 Tuberculosis Pill Dispenser Manual

TB08 Tuberculosis? Please Tell me More (colouring book)

TB09 Tuberculosis Control and Management Project for Long Term Care

TB10 Guidelines for Preventing the Transmission of TB in Hospitals and Other Institutional Settings

TB11 Tuberculin Skin Test Guidelines (pocket sized—ENGLISH)

TB12 Tuberculin Skin Test Guidelines (pocket sized—FRENCH)

TB13 Tuberculin Skin Test Guidelines (large)

Appendix 15: Respiratory Isolation Guidelines for Tuberculosis Control

The following guidelines have been developed to help Regional Health Authorities (RHA's) in meeting respiratory isolation requirements and determining when and where infectious cases of tuberculosis should be isolated and for how long. They recognize that the overall goal of public health programs must not be merely the provision of healthcare to those who may be marginalized but a systematic commitment to protect the health of the general public in a time of increasing globalization. As it is not possible for any guideline to address all potential situations, clinical judgement must always be exercised.

Terms & Definitions

1. **Airborne precautions** - measures designed to reduce the risk of airborne transmission of infectious agents such as *M. tuberculosis.*

2. **Infectious tuberculosis** - tuberculosis disease of the respiratory tract, capable of producing infection or disease in others.

   The most infectious cases are thought to be those that are smear-positive in spontaneously expectorated sputum. For patients who have no sputum or are smear-negative on examination of spontaneously expectorated sputum, then gastric aspirates, sputum induction and fiberoptic bronchoscopy are increasingly used, because they have a high yield and allow earlier diagnosis of tuberculosis. Although most patients whose TB is diagnosed with these alternative methods have shown minimal or moderately advanced disease on radiographic examination, some series reported that as many as one-third had advanced or cavitary disease and between 22% and 35% of specimens from these alternative techniques were smear positive. Therefore the question of the contagiousness of such patients arises frequently but, to date, has not been studied directly. In the absence of any solid epidemiologic information it is prudent to consider the results of these alternative diagnostic methods as equivalent to the results from spontaneously expectorated sputum. Thus, patients with "respiratory secretions" of any kind that are smear-positive are regarded as being the most infectious to others.

   Patients whose respiratory secretions are smear-negative but culture-positive have fewer bacilli and so generate fewer infectious particles. However, it must be understood that the reduced bacillary concentration of their sputum may be offset by other factors, such as laryngeal involvement, younger age, or more frequent cough. In addition transmission may be enhanced by crowding, low air exchange rates or longer duration of contact.

3. **Isolation** - the separation from other persons of a person with known or suspect infectious tuberculosis in a place and under conditions that will prevent the transmission of the infection.

4. **Suspect…tuberculosis** - an illness marked by symptoms, laboratory tests, or radiographic findings consistent with, or indicative of, tuberculosis.

5. **Directly observed treatment (DOT)** – the standard method of delivering treatment to infectious pulmonary tuberculosis patients whereby a trained person watches and records each dose of TB medication as it is swallowed.

Purpose

The purpose of isolation is to ensure that further transmission of tuberculosis does not occur when an individual is suspected or known to have infectious tuberculosis. This applies both to voluntary isolation, when the affected person is accepting of isolation measures, and to non-voluntary isolation due to lack of agreement or understanding on the part of the affected person. The most effective means of rendering someone non-infectious is through prompt initiation of effective treatment.

Legislation

The Communicable Disease Regulations of the Public Health Act is the Provincial legislation that governs the handling of suspect or infectious tuberculosis. Alberta Health & Wellness - Tuberculosis Control (TB Control) and the RHA's have a responsibility to ensure that isolation is provided when deemed necessary for all individuals who have suspect or confirmed infectious tuberculosis in order to prevent and control the transmission of *M. tuberculosis*.

Every person known to have or suspected of having a communicable disease is required to "submit to the treatment directed and comply with any other conditions prescribed by the physician until the physician is satisfied that he is not infectious" (Province of Alberta - Public Health Act, Communicable Diseases Regulation, pg. 16).

"In the case of pulmonary tuberculosis in an infectious form, modified (respiratory) isolation procedures apply until the person is no longer infectious" (Province of Alberta - Public Health Act, Communicable Diseases Regulation, pg. 43).

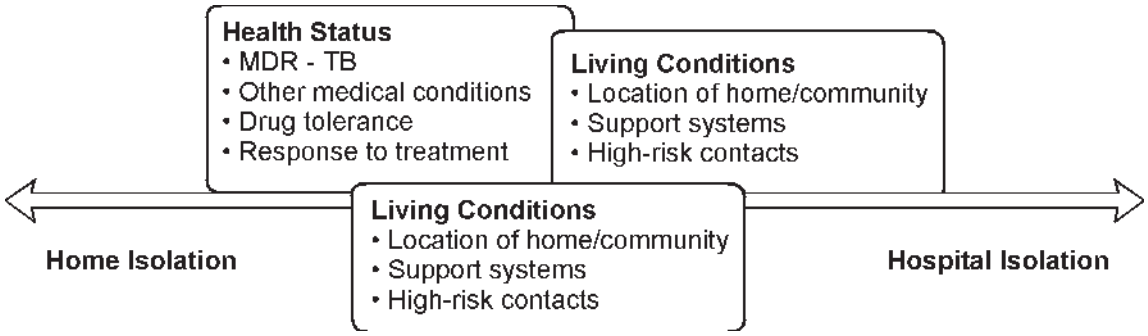
Guiding Principles

TB Control will work closely with the RHA's to determine the need for airborne precautions and isolation of persons with suspect or confirmed infectious tuberculosis.

Isolation can be successfully implemented and maintained in different environments. **Recognizing that each individual and situation is unique, determining where isolation is best carried out will involve careful consideration of the complex interaction between health status, living conditions, and available resources.**

TB Control and RHA's will work collaboratively to ensure appropriate isolation and management of tuberculosis disease in an environment most suited to achieving the desired outcome, while at the same time causing the least disruption to the individual and health system. If persons can be safely maintained in their home environment without danger to themselves, their family or the general public, TB Control and RHA's will encourage and support this.

Isolation may be viewed as a continuum, where a person's placement along the continuum at any given time during treatment is dependent upon the availability and optimization of, or limitations imposed by, individual and health system resources.



Isolation Preplanning

A. Identify locations available within the Region where individuals who need isolation/ airborne precautions can be housed when home isolation is not appropriate.

Such a facility may need to house a patient with suspect active disease. Ideally the location would have a negative pressure room that meets requirements for isolation of infectious tuberculosis patients (see *Guidelines for Preventing the Transmission of Tuberculosis in Health Care Facilities and Other Institutional Settings)* and an infection control plan that ensures competency in carrying out isolation/ airborne precautions.

1. Contact administrators of potential locations to develop a preparedness plan.
   a. In preparation for individuals who will need inpatient care, establish the facility's ability to meet care and treatment needs.
   b. Identify Public Health service's responsibility regarding tuberculosis care and treatment.
   c. Describe how facility staff, service providers and the community can play an important role in regional readiness for immediate care and treatment of active tuberculosis.

2. Provision of basic TB education to facility personnel can help assuage fears or misconceptions about tuberculosis. Information to consider covering may include pathogenesis, transmission, and treatment of tuberculosis as well as concepts concerning isolation and airborne precautions.

B. Identify services within the Region that can be accessed to facilitate addressing unique needs of patients requiring isolation.

1. Medical Needs (Physician Services etc.)
2. Education Needs
3. Social Services Needs
4. Transportation Needs

C. Identify who in the region will delegate or carryout the risk/needs assessments upon receiving report of a suspect or confirmed infectious case of tuberculosis in the region.

Risk & Needs Assessment

A. Assess patient's health status and relevant medical history upon receiving verbal or written notification of a suspect or confirmed infectious tuberculosis case within the region.

1. Consider the following when evaluating the extent of the individual's TB disease and anticipated infectiousness:
   a. Forceful productive cough
   b. Hemoptysis
   c. Hoarseness
   d. Evidence of cavitary lesions on chest radiograph
   e. Presence of AFB on smear of expectorated sputum

2. At risk for drug toxicity or complications due to co-morbidity:
   a. History of liver disease
   b. History of or recently documented HIV disease
   c. History of substance abuse
   d. Use of multiple other drugs

3. At risk of drug-resistant tuberculosis:
   a. Past history of treatment of TB disease
   b. Infection with or contact with drug-resistant tuberculosis

Some type of respiratory isolation needs to be considered in all those whose airway secretions are AFB smear-positive; airway secretions to include spontaneously expectorated sputum, induced sputum, gastric aspirates, auger suctions, bronchoscopic washings or brushings, bronchoalveolar lavage fluid and endotracheal or tracheal tube suctionings. It should also be considered during the first two weeks of therapy in those whose airway secretions have been determined to be culture-positive but smear-negative. In the event that the specimen determined to be culture-positive but smear-negative was collected at some time in the past, it is recommended that the present smear status of spontaneously expectorated sputum be determined if indeed spontaneous sputum is obtainable.

B. Assess living situation/environment within 12 to 48 hours of receiving verbal or written notification of a suspect or confirmed infectious tuberculosis case within the region. [*Refer to Form #1, Isolation Assessment Form*]

1. Ensure that the health staff (community and/or hospital) who will have contact with the individual have been trained and are competent in following respiratory isolation precautions, including staff protective measures.

2. Assess the individual's environment for factors that increase the risk of tuberculosis transmission to susceptible persons.
   a. Determine if the individual lives in a congregate setting where the air space is shared by many.

The following types of settings are considered high risk for transmission of tuberculosis:

- Correctional centres
- Hospitals
- Long-term Care facilities/Nursing homes
- Mental Health institutions
- Drug & Alcohol treatment centers
- Homeless shelters
- Living accommodations, including apartment and/or single room occupancy hotels, if air from one room is circulated to other rooms through the building ventilation system.

b. If the individual lives in a congregate setting, establish the nature of the ventilation system and whether air is recirculated within the building (i.e. Does air from residential suites get filtered? Is it re-circulated or is it vented to the outdoors?).

c. Determine if the individual lives with or has other close contact with persons at greater risk for TB disease if infected (i.e. children aged 5 or under or persons who may be immunocompromised). (See *Contact Investigation Section of TB Control Manual*)

d. Determine if the individual provides services within the home to members of high-risk groups. (Refer to *TB Control Manual - Section 2, Screening Programs*)

3. If residence environment does not identify high-risk or susceptible contacts, consider feasibility for implementing isolation/airborne precautions there.

C. Assess for individual factors that may influence the person's ability to adhere to isolation/airborne precautions, such as: (*See Sample Form #1 – Isolation Assessment Form*)

1. Substance abuse.
2. Mental or emotional problems.
3. Chronic medical conditions that will increase the risk of transmission of tuberculosis, such as the need for dialysis, medical follow-up appointments, etc.
4. Beliefs affecting their understanding or acceptance of having tuberculosis disease, especially understanding of the ability to transmit TB to others.
5. Previous treatment failures for tuberculosis (either active TB disease or latent TB infection) or evidence of non-compliance with other treatment regimens.
6. Support systems available to the patient to assist in maintaining activities/responsibilities of daily living (i.e. care of children, grocery shopping, laundry, bill paying, medical or other appointments, obtaining medication, spiritual needs, other relationships, etc.).

Development of Plan and Implementation of Airborne Precautions/Isolation

A. Discuss findings of risk/needs assessment with the Regional TB Coordinator and/or the Medical Officer of Health and determine options for isolation.

1. For non-hospital isolation:
   a. Consider resources available within the region for addressing identified risks and/or needs.
   b. Determine whether isolation can be maintained in current living environment.
   c. In the event the current living situation is not appropriate, (e.g. congregate living site, or site where there is shared air through the building ventilation system or where infants and young children also reside), consider what arrangements can be made to secure an alternative living environment within the community. (Preparations conducted during the preplanning can assist in ensuring a good transition for both patient and the community).
   d. Obtain one or two contact names and phone numbers from the patient in case they are not home when you go to visit (someone who would know if they went to the hospital unexpectedly etc.).
   e. Individualize and review the initial Plan until it is safe, yet workable for the individual and he/she demonstrates satisfactory recall and/or verbalizes the intent to adhere to the Plan. A verbal or written contract for adherence to the required behaviors and actions may help the person and the family to understand what is expected and may help the public health staff as well. [*See Sample Form #2 – Voluntary Isolation Contract*]
      - Identify who will deliver DOT.
      - Identify in writing, the list of persons who are allowed to remain in the residence or visit while the individual is under the isolation restrictions.
      - Discuss activities that the individual can safely perform without putting others at risk (such as walking outside if it presents no risk).
   f. Use all available means to promote cooperation and support adherence. Consider use of incentives and enablers (e.g. food, personal items, vouchers, books, videotapes, toys, and assistance with housing or personal needs.) Refer to *"Improving Patient Adherence to Tuberculosis Treatment"* published by the Centers for Disease Control and Prevention (CDC) 1994.

2. Where isolation in the community is not appropriate or feasible, hospitalization may be required. Determine where hospitalization will occur:
   a. Refer to *Regional Tuberculosis Isolation Room Capacity* list for hospital isolation rooms within the region.
   b. When appropriate, arrange for admission to the communal tuberculosis unit on 5C3 at the University of Alberta Hospitals. This unit is a Provincial resource for the extended isolation of tuberculosis patients who are recalcitrant, drug-resistant, drug-intolerant or who are potentially contagious but not suitable for home isolation.

B. Assess knowledge and provide information to the individual and other relevant support persons on the disease, care and treatment, and the need for isolation.

1. Ensure information on isolation/airborne precautions is emphasized early on to allow the ad dressing of issues that may affect maintaining isolation. Reinforce need for isolation and treatment messages as case management proceeds. Provide basic education about tuberculosis, including the following information:
   - The disease process as relevant to the person with a new initial diagnosis adjusting to isolation (give more details later as person adjusts).
   - The airborne nature of transmission and the risk to others with close, prolonged contact.
   - The importance of covering mouth and nose when coughing and sneezing. A mask worn by someone with tuberculosis does not protect others.
   - Review with the individual facts on *M. tuberculosis* giving appropriate written materials in the person's own language and/or with use of a good interpreter. [*Information & materials available through TB Control*]
   - Review and instruct on the medication regimen and importance of routine tests for monitoring treatment progress.

2. Provide ample time for feedback from patient, family and health care staff. Ask open-ended questions to evaluate understanding.

C. Begin isolation discharge planning. Identify expectations around continuation of treatment once isolation is discontinued.

a. Who will provide DOT?
b. Where will DOT be delivered?
c. How long will DOT be delivered and will it be daily or intermittent?

1. Identify resources/services required to support adherence to treatment regime.
   a. Will transportation need to be arranged?

Monitoring Isolation/Airborne Precautions and Addressing Recalcitrance

A. Maintaining the Plan

1. The Public Health Nurse (liaising as necessary with the Medical Officer of Health, attending physician, and Tuberculosis Control) has immediate responsibility for the management of each case. They or their designate will visit the individual as often as necessary to monitor the clinical condition, ensure delivery of DOT, evaluate for medication side effects and ensure adherence with isolation while building rapport with the client. This may include unannounced home visits to assess adherence to isolation. [*RHA may want to establish a minimum visit frequency; requirement is not prescriptive; medical officer* ***remains responsible****.*]

2. Review and re-emphasize at each visit the importance of taking the treatment and staying at home or maintaining the previously agreed upon airborne precautions. Encourage the patient to discuss/share any challenges faced regarding the isolation restrictions. Assist in addressing issues as they arise.
   a. Look for signs that the individual may be having difficulty coping with the isolation and visitor restrictions.
   b. Work with the person to determine ways to maintain contact with significant others who cannot visit until the infectious period is over.

3. Regularly revisit the Plan, consulting the patient's family physician for any medical issues, to ensure that it is least disruptive to the individual's life and still supports the goals of optimal treatment and protection of others.

Evaluating Response to Treatment

1. Assessing adequacy of treatment in light of drug-susceptibility test results
2. Mycobacteriology
3. Symptom Improvement
4. Radiographic improvement

4. Recalcitrance

If an individual refuses or neglects to comply with conditions that have been prescribed by a physician as necessary to mitigate tuberculosis or limit its spread to others, a certificate may be issued by a Medical Officer of Health to apprehend and detain the person for that purpose. Legal confinement, however, is used as a last resort. [*See also TB Control Manual Section 3, Case Management*]

The Provincial Medical Consultant for Tuberculosis, Provincial Health Officer, Regional Medical Officer of Health or Medical Officer of Health for First Nations and Inuit Health Branch may issue such a certificate whenever indicated. A person in respect of whom a certificate is issued may apply at any time for cancellation of the certificate. Recalcitrant patients may also be held under an "Isolation Order" (Section 44 of the Public Health Act).

D. Release from isolation

1. Although criteria for discontinuing TB isolation precautions in patients confined to health care facilities or other institutional settings are quite explicit (*Guidelines for Preventing the Transmission of Tuberculosis in Canadian Healthcare Facilities and other Institutional Settings,* CCDR, April 1996, vol 2251, and *Guidelines for Preventing the Transmission of Tuberculosis in Health Care Facilities and Other Institutional Settings,* Alberta Health), criteria for the release from isolation, whether it be hospital or non-hospital, back to the community or workplace, are less explicit. The following guidelines are recommended:

    a. In patients whose airway secretions have been determined at the outset of treatment to be smear-positive: it is recommended that they not be released from respiratory isolation, back into the community or workplace, until at least three consecutive spontaneously produced sputum smears (on separate days) are negative, unless it can be said with reasonable certainty that they are not returning to a setting where transmission to new previously unexposed contacts is possible (e.g. crowded living quarters, low air exchange rates, longer duration of contact) or where there may be exposure to new contacts who are at high risk to progress to disease were they to become infected, e.g. children, the immunocompromised. If it can be said that these do not apply then the patient may be released from isolation after a minimum of three weeks of effective treatment (see c, d and e below), and without the necessity of submitting three sputa for AFB smear and culture.
    b. In the event that the initially smear-positive patient, although cooperative, cannot subsequently produce sputum spontaneously or in the event that the patient's airway secretions were smear-negative at the outset: it is recommended that they not be released from respiratory isolation until they have completed a minimum of two weeks of effective treatment (see c, d, e below)
    c. There is clinical evidence of improvement; and
    d. Drug susceptibility tests have determined that the patients isolate is being treated with an adequate regimen, or in the event that drug susceptibility tests are not yet available, the risk of drug resistance is considered to be very low.
    e. There is evidence of adherence to the prescribed treatment regimen for a minimum of two weeks and the delivery of DOT has been successful.

2. Specific arrangements should be made for post-isolation care; the post-isolation plan should include arrangements for ongoing treatment and follow up care.

3. Continue case management and follow up care until prescribed therapy is completed.

4. Review and implement Discharge Plan.

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Sample Form #1 –Isolation Assessment Form

ISOLATION ASSESSMENT FORM

Date: _____

Client Name _____ DOB _____ TB File #: _____

Address _____ Postal Code _____

Home Phone _____ Physician name & phone: _____

Contact Person / Next of Kin & phone: _____

Community / Home Environment

1. Community Location (describe): _____

   _____

2. Availability of and accessibility to health services (describe): _____

   _____

3. Current living situation: ☐ Stable ☐ Unstable

   Type of residence (describe): ☐ House _____

   ☐ Appt / Condo _____

   ☐ Institution (LTC facility, correctional facility, etc _____

   ☐ Drop in Centre / Shelter _____

   ☐ Homeless _____

   ☐ Other _____

   Number of people sharing residence: _____

   High risk contacts (specify): _____

   Previously unexposed contacts: ☐ Yes ☐ No

   Private room: ☐ Yes ☐ No

   Air circulation adequate: ☐ Yes ☐ No (refer to AHW Guidelines for Prevention Transmission 1998)

4. Transportation (describe): ☐ private transportation available _____

   ☐ no transportation resources _____

Social Factors / Considerations

1. Support for activities of daily living (describe):

Grocery shopping / meal preparation	☐ Yes	☐ No
Laundry / housekeeping	☐ Yes	☐ No
Banking / bill payment	☐ Yes	☐ No
Medical appointments	☐ Yes	☐ No

2. Occupation / Employment status (describe): _____
3. Family / Friends involved in care (name): _____

4. Social Services involved / available: ☐ No

   ☐ Yes Social Worker (name)_____(ph.#):_____

5. Other community support services involved / available (describe): _____

   _____

6. Emotional / Spiritual support(describe): _____

   _____

7. Family / friends support (describe): _____

Individual Factors / Considerations

Understanding of TB diagnosis / treatment plan : ☐ Yes ☐ No

Describe: _____

_____

Acceptance of TB diagnosis / treatment plan : ☐ Yes ☐ No

Describe: _____

_____

1. Current medication(s) (list) _____

   _____

2. Compliance with current medication and follow up (describe): _____

   _____

Prescribed Treatment

1. Diagnosis: _____
2. Drug Resistance: ☐ Yes ☐ No
3. Current drug regimen: ☐ INH ☐ RIF ☐ PZA ☐ EMB ☐ Other _____
4. Date medication started: _____
5. DOT provided by: ☐ Public Health Nurse ☐ Hospital Staff ☐ Other _____
6. Location of DOT: ☐ Home ☐ Hospital ☐ Other _____
7. Frequency of DOT: ☐ Daily ☐ 5x week ☐ 2x week _____
8. Other medical diagnosis (list) _____
9. Follow up appointment: TB Clinic (date) _____

   Other medical appointment(s): where_____date _____

11. Bloodwork: ☐ Routine ☐ Other (specify):_____
12. Vision screening: ☐ Routine ☐ Other (specify) _____

E. Summary / Plan

_____

_____

_____

Sample Form #2: Sample Voluntary Client Isolation Contract
(Suggested language, may place on RHA letterhead)

To: _____

You have *infectious* TB. *Infectious* means that you could spread TB to other people by being in the same room or home with them. The TB germ spreads from one person to another through the air. The TB germ gets into the air when you cough, sneeze, sing or speak forcefully. To protect people around you from catching TB, you need to take your TB pills and stay at _____ until you can no longer spread your TB. Then you will be able to return to doing the things you normally do including visiting with other friends and family. You will need to keep taking the TB pills even after you return to your normal activity. The health staff will regularly check on you during the time you are taking pills. We will let you know when new tests need to be done and what those tests show. We will also let you know when you no longer need to take pills.

We found that you have TB from a_____ sample which showed the TB germ under a microscope; a _____ sample with TB germs which grew in a lab; and/or a chest x-ray done on_____ which showed signs of TB disease in your lungs.

It is against the law for people in Alberta with infectious TB to 1) stop taking their TB pills before the health staff tell them to or 2) go out in public while they are still able to spread the TB germ to other people. These laws are part of the Public Health Act and Communicable Disease Regulations. If you break these laws you could be picked up by the police and taken to hospital to protect other people from catching your TB and to get medical care. If you follow this agreement you will not break any laws.

I understand the above. I, _____, agree to remain at _____ to protect other people from catching TB from me. I will remain there until I am told by _____ _____ that I no longer need to.

While I remain at _____ I agree that I will only spend time with the people I live with, the TB health staff and the other people agreed to by the Regional Medical Officer of Health. These people are: _____
_____

I will call the Public Health Nurse and/or Community Health Nurse at ph.#: _____ if:

- I am having any problem sticking to this agreement,
- my symptoms change, and/or
- I remember anyone else who was in contact with me and should be tested for TB.

I understand that the Public Health Nurse and/or Community Health Nurse will visit me regularly. They will check on how I am doing and make sure that I am not having problems sticking to this agreement.

Signature: _____ Date: _____

Witnessed by:_____ Date: _____

PUBLIC HEALTH ACT
Section 49(2)

CERTIFICATE OF A MEDICAL OFFICER OF HEALTH

TO ALL OR ANY OF THE PEACE OFFICERS IN ALBERTA
AND TO ALL OR ANY OF THE PHYSICIANS IN ALBERTA

I, **doctor's name**, of city/town Alberta, Medical Officer of Health, hereby certify that **patient's name** of city/town, Alberta.

1. Is or may be infected with a disease which is a prescribed disease for the purpose of section 49 or the *Public Health Act*, AND

2. REFUSES or is NEGLECTING:

(strike inapplicable statement)

a) to submit to a medical examination for the purpose of ascertaining whether or not he is infected with that disease;
b) to submit to medical, surgical or other remedial treatment that has been prescribed by a physician and that is necessary to render the person non-infectious;
c) to complete with any other conditions that have been prescribed by a physician as being necessary to mitigate the disease or limit its spread to others.

THIS CERTIFICATE IS AUTHORITY, pursuant to section 50 of the *Public Health Act*,

1. for any peace office to apprehend **patient's name** and convey him to **Walter C MacKenzie Centre 5C3** within 7 days of issue of this certificate.

2. for a physician to conduct an examination of **patient's name**

   In the manner prescribed in the regulations under the *Public Health Act* AND for a physician to treat or prescribe treatment for **patient's name** in order to render him non-infectious, with or without his consent, AND for a physician to detain **him** at **WCM 5C3** in accordance with the provisions of the *Public Health Act*, AND

3. for a physician to prescribe any other conditions necessary to mitigate the disease or limit its spread to others.

The following precautions should be observed: (Check appropriate precaution)

? mask (on patient)

? hand washing

_____
Medical Officer of Health

DATE OF ISSUE _____

TIME OF ISSUE_____

NOTE: Where this Certificate is issued pursuant to a Notice under section 49(1) of the *Public Health Act*, the Certificate must be issued within 72 hours of the date of service of that Notice.

DESCRIPTION:

NAME Patient's name

DOB

ETHNIC ORIGIN

WEIGHT

HEIGHT

DISTINGUISHING FEATURES

CURRENT ADDRESS

Appendix 16: Screening and Prevention of Tuberculosis in HIV Patients

Recommendations For The Screening And Prevention Of Tuberculosis (TB) In Human Immunodeficiency Virus (HIV) Patients And The Screening For Human Immunodeficiency Virus In Tuberculosis Patients And Their Contacts

These recommendations were prepared by the Canadian Tuberculosis Committee. They have been approved by the Canadian Thoracic Society of the Canadian Lung Association and the Canadian Infectious Disease Society.

Screening and Prevention of Tuberculosis in Human Immunodeficiency Virus Patients

The HIV epidemic has had a dramatic impact on tuberculosis rates and tuberculosis control in populations where both infections are prevalent.[1] HIV, in particular advanced HIV (AIDS), is the most potent risk factor ever identified for the progression to disease of recent or remotely acquired tuberculosis infection.[2] It operates by destroying the two immune cells most important to the containment of tubercle bacilli (macrophages and CD4 receptor bearing lymphocytes).[3] Amongst persons infected with Mycobacterium tuberculosis and pre-HAART (highly active antiretroviral therapy), the estimated risk of active tuberculosis relative to patients with no known risk factor is 170.0 for AIDS and 113.0 for HIV infection without AIDS.[2] Cases of tuberculosis thus produced, increase the risk of transmission of M. tuberculosis within the community, thereby constituting a second, indirect mechanism by which HIV increases tuberculosis morbidity.[4] In Canada, two groups in particular are at increased risk of being infected with M. tuberculosis – the foreign-born from tuberculosis endemic countries and Aboriginals.[5] Recent data suggest that HIV/AIDS is increasing amongst these groups.[6,7] Treatment of latent tuberculosis infection (LTBI) has been shown to reduce the risk of progression to active disease in HIV-TB co-infected individuals.[8,9] It is recommended that:

1. Every newly diagnosed patient with HIV infection should be assessed for the presence of active tuberculosis at the time of diagnosis of HIV. An inquiry after symptoms that would suggest active tuberculosis (cough, especially if productive or associated with hemoptysis, fever, weight loss, night sweats) should be made and any history of past tuberculosis or known/likely exposure to tuberculosis, ascertained. In those reporting having received treatment of active tuberculosis or LTBI in the past, a determination of the adequacy of prior treatment must be made. As well a physical examination that includes examination of extrapulmonary sites of disease such as lymph nodes,[10] and a chest radiograph should be performed and features of current or past tuberculosis sought. The examiner should be conscious of the fact that the clinical and radiographic features of tuberculosis may be altered in the presence of HIV infection in approximate proportion to the individual's degree of immunosuppression.[3] Persons with suspect active tuberculosis should have sputum or other appropriate specimens submitted for acid-fast bacilli (AFB) smear and culture.

2. Healthcare workers caring for patients with HIV infection should maintain a high level of suspicion for tuberculosis.

3. Except in those with a history of active tuberculosis or a well documented previous positive tuberculin skin test (TST), every HIV-infected person should have a TST with intermediate strength (5-TU) purified protein derivative by the Mantoux method and read at 48–72 hours by a healthcare worker experienced at reading TSTs.

4. Tuberculosis screening with TST should be performed as soon as possible after HIV infection is diagnosed because the reliability of the TST can diminish as the CD4 lymphocyte count declines.

5. The TST should be repeated annually in patients at increased risk of ongoing tuberculosis exposure. In those in whom repeated testing is anticipated, the initial test should be a 2–Step test.[2]

6. Induration of 5 mm or more on the TST should be considered indicative of tuberculous infection.[2,3]

7. Routine anergy testing is not recommended.[11,12]

8. In TST negative patients, repeat TST may be considered after institution of antiretroviral therapy and evidence of immune reconstitution.[3]

9. Unless specifically contraindicated, HIV-positive persons: a) who have a positive TST ($ 5 mm of induration) b) who have not already been treated for tuberculosis infection, and c) whose test results exclude active tuberculosis should be strongly encouraged to take preventive therapy.[12-15] This preventive therapy is indicated even if the date of TST conversion cannot be determined. Because of the very high risk of developing active tuberculosis in HIV-TB co-infected individuals, creative means of enhancing adherence such as directly observed preventive therapy should be considered particularly if concerns exist about the patient's adherence.

10. HIV-infected close contacts of patients with infectious tuberculosis should receive treatment for presumptive latent tuberculosis infection, even when repeat TST after contact is not indicative of latent infection.[15] Because re-infection can occur this may at times imply retreatment of a person who has already undergone treatment in the past.

11. Preventive therapy is recommended during pregnancy for HIV-infected patients who have either a positive TST or a recent history of exposure to active tuberculosis, after active tuberculosis has been excluded.

12. HIV-infected persons who are candidates for, but who do not receive tuberculosis preventive therapy, should be assessed periodically for symptoms of active tuberculosis as part of their ongoing HIV infection management. Clinicians should educate these persons about the symptoms of tuberculosis disease and advise them to seek medical attention promptly should such symptoms develop.

13. The administration of BCG vaccine to HIV-infected persons is contraindicated because of its potential to cause disseminated disease.

14. HIV-infected persons should be advised that certain activities and occupations may increase the likelihood of exposure to tuberculosis. These include volunteer work or employment in healthcare facilities, correctional institutions and shelters for the homeless, as well as travel to tuberculosis endemic countries.

Tuberculosis in an HIV-infected person is an AIDS defining illness. Both tuberculosis and AIDS should be reported to the Public Health Department.[16]

Screening For Human Immunondeficiency Virus in Tuberculosis Patients and Their Contacts

Patients with tuberculosis constitute an important "sentinel" population for HIV screening. In some African countries with high tuberculosis prevalence, HIV prevalence exceeds 50% amongst tuberculosis patients.[17] In the United States, between 1985 and 1992, tuberculosis patients were 204–fold more likely to have AIDS than the general population.[18] The benefits of identifying previously unrecognized HIV infection are substantial, in terms of both the opportunities for preventing future HIV transmission and the large potential benefits to the patient of antiretroviral therapy.[3] Knowledge of the HIV serostatus of tuberculosis patients may also influence the treatment of their tuberculosis.[19] Even in those not receiving antiretrovirals there may be an increased risk of adverse reactions from antituberculosis drugs.[20] Because HIV-infected persons are at risk of peripheral neuropathy, co-administration of pyridoxine with isoniazid may be prudent. Some HIV-infected tuberculosis patients have been reported to malabsorb their antituberculosis drugs so that measurement of serum drug levels may be necessary if there is a poor response to treatment.[3] It is recommended that:

1. All newly diagnosed tuberculosis patients should be strongly encouraged to undergo HIV serologic testing.

2. HIV-testing of contacts of infectious tuberculosis cases should be considered if they are at risk for HIV.[21,22]

Healthcare providers, administrators and tuberculosis controllers should strive to promote coordinated care for patients with tuberculosis and HIV and to improve information sharing between tuberculosis control programs and HIV/AIDS programs.

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